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The Manual for Upper Leather Cutters

By

BYON H. BOLTON

Illustrated

CHICAGO
THE JACOBSON PUBLISHING COMPANY
300 West Adams Street
1927

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The Manual for Upper Leather Cutters

Chapter I

TOOLS AND THEIR CARE

THE tools needed by the cutter are a knife, an awl, a sharpening-stone and a buffing tool.

The knife may be any one of the standard makes on the market at present, made purposely for the cutting of shoe uppers. The standard sizes have 2, 3, and 3¼ inch handles. They are made to hold a blade firmly between the jaws of the handle when set, but the blade may be removed by unscrewing the handle slightly. Blades are generally about four inches long and, in most cases, can be bought in the cutting room or stock room.

It is necessary to learn the proper way to grind the blade in order to obtain best results. This is generally a matter of personal opinion, some cutters using a long grind, while others use a short one; some will use a hook, while others prefer a straight ground blade; some want a blade to be rigid; others want a blade to have considerable spring. Cutters are generally learning to use a knife at the time of becoming educated to knife grinding, thereby gradually becoming accustomed to an individual style of grind. However, all cutters find that a grind must be made to meet certain conditions, as a blade ground to cut kid cannot be used to cut heavy, solid-bodied leathers if best results are to be obtained.

Careful Grinding Important

Where emery wheels are used for grinding, care must be exercised that the blade does not become too hot. Heating takes the temper out of the steel and the blade will not remain sharp. Finishing is done on the sharpening-stone.

The awl is a sharp pointed instrument used for punching marks in the finished cut. Awl marks are guides to fitting and must be accurate and plainly visible. Therefore, the awl should be ground to a sharp point, so that it will pierce readily and leave a mark which may be seen easily. The awl handle is usually from one to three inches long.

The sharpening-stone should be of fine grain and smooth, so that it is capable of giving a smooth, keen edge.

The buffing tool is the instrument for dressing the surface of the cutting board. It can be made from a hand-saw blade, or it can be bought at most local hardware stores. Some cutters prefer to use a straight blade spoke shave, the smaller types being usually considered best.

Care of Cutting Board

The cutting board is furnished by the manufacturer and can not be classed as a cutters' tool, but the cutter must assume responsibility for keeping his board in good condition. He should try to avoid slanting his knife, so that grooves will not be cut in the board. He should buff or plane it at least once a week, giving it a light coat of dressing after-

ward. Linseed oil is generally used, although some manufacturers prefer a special preparation. This dressing should be buffed from the surface before starting to cut on the following work day. Buffings should be placed in a metal container and taken to the boiler room, as they are highly inflammable and may start a fire if left lying about.

Chapter II

LEARNING TO USE THE PATTERN; OBSERVATION OF TICKET MARKINGS

IT is absolutely essential in learning to use the pattern that the student cutter does not neglect careful observation of all ticket markings which are in any way concerned with the job he is cutting; therefore, these two items are included under one heading. They are closely related and must be considered as bearing directly each upon the other.

The student cutter, when he gets his job, will first observe the pattern number, on which he will cut a particular shoe as described upon his work tag. He may have two or three different kinds of shoes on any one job, and, if he does not watch the pattern number, he may cut a complete lot incorrectly. The reason why some manufacturers practice the custom of putting one, two or three kinds of shoes on one job is that various patterns have different shapes, and some can be used to work up certain parts of skin where others can not. They may also be of two grades, one superior to the other; therefore, one shoe will carry a poorer stock than will the other.

After observing the pattern number, the next important item is to look for the width upon which the shoe is to be built. Widths run in double A, A, B, C, D, E, and double E, the narrowest being double A and the widest double E. In some in-

stances, there are shoes narrower than double A and wider than double E. The cutter will learn these things as the occasion presents itself. If he does not observe width markings on tags, he will soon learn that his shoes do not fit. The trimming cutter, having cut a job upon one width, and the upper cutter having cut his job upon another, an improper fit will result when the shoe is being made in the stitching room. These differences lead to investigation, and the trouble will be located when the cuts are measured to the proper pattern. Therefore, we would say again, be sure to observe the width upon your tag.

Cutting Up or Down a Size

In many factories, it is customary to use one width of pattern to cut probably two or three different widths of shoes, but tickets will give instructions on how to use this pattern in order to get the proper fit, sometimes being marked "cut one-half size up" and sometimes being marked "cut one-half size down." Various other markings may be used from time to time in giving such directions. These are merely given as illustrations. When cutting one-half up, the cutter should remember to use size 8 for 7½ and size 7½ to cut the 7, and so on down the line. In cutting one-half down, the process is reversed. He will use size 7 to cut 7½ and 6½ to cut size 7. If he fails to observe these directions, he will be in as much trouble as though he failed

to observe the width marking, for the uppers will not fit the linings.

The student cutter should exercise care in learning to hold his pattern. He will find that he experiences considerable difficulty in making a pattern remain in one position. He must learn to hold it fast, however, because, if the pattern slips, the cut will not be exactly as the design calls for, and, again, the upper will not fit the lining. It is not necessary to use all one's strength to hold a pattern down. It will seem so at the beginning, as the cutter will crowd his pattern with his knife, thereby forcing it from its original position, or he will exert so much weight with the hand he is using to hold it that he will apply side pressure and slip the pattern from sheer force. It should be his constant endeavor to learn to hold a pattern firmly and with ease. He should constantly try to make the complete cut around the pattern without any deviation from its lines, thereby obtaining a perfect cut. When he has mastered this knack, he will see that his work will stack up as evenly as a new deck of cards. This is the standard for which he should strive.

Chapter III

LEARNING TO HANDLE THE KNIFE

A LITTLE difficulty will be experienced in the beginning in trying to handle the knife. The cutter should endeavor to use his knife without tensing his muscles. He should try to develop a free-hand movement for all positions. This is acquired only by constant practice. He should try to avoid slanting the knife blade, although he will find that this will be hard for him to overcome. There is a tendency for beginners to crowd the corners. It is well to try to make the corner without withdrawing the knife from the board. However, care must be exercised to avoid breaking the point of the knife; also, care must be used to keep from running by the corner and turning back, leaving a small point where a clean corner should be. Another tendency is to twist the knife on the board. This is injurious to a board and will dig out small holes. If he is to become a good cutter, he wants his board to be in first-class condition at all times and must be careful to see that he does nothing to injure the cutting surface.

Proper grinding is a most important point in learning to use the knife. Once a cutter has become accustomed to making a grind for himself, he will soon learn the shape and size of the grind which he can use to best advantage. He must try to keep from using the emery too much without frequently

withdrawing the blade from the wheel, or the blade will be burned. Burned blades are soft; the temper having been taken from the steel, they will not hold an edge, and, of course, the cutter is put to the trouble of making another grind.

Any of the standard makes of handles on the market at this time are all right, and, having procured one for himself, the cutter should see that he keeps his handle in good condition. A good knife handle should last a cutter two or three years. Some may make them last even longer than this. A very little oil placed on the inside of the handle will keep the parts from rusting.

Too much oil should not be put in, for it will work down through the jaws and onto the leather, leaving soiled spots. Some cutters have a tendency to hit the jaws on the emery wheel when grinding. Of course, this damages the knife and will shorten its life considerably. In order to keep the handle away from the wheel, it is well to learn to grind with the blade extended farther than it would be used for cutting.

Holding and Using the Knife

Having the proper grind, the cutter should endeavor to use his knife following the line of the pattern exactly, but not crowding it. He can do this in the same manner in which he would develop the knack of cutting along a mark. It is much easier than cutting along a mark because he has a raised edge for a guide. Some cutters will extend their

forefinger close down to the point of the knife blade. This aids in following the pattern edge and makes a sensitive guide. Others depend upon their eyesight in guiding the knife around the pattern, and some never do overcome the habit of crowding a pattern. On abrupt inside curves, there is always a tendency to cut away the pattern binding or the pattern itself. A cutter should constantly try to overcome this, for it damages patterns and spoils the edge on his knife, thereby making cutting difficult. Occasionally, the binding on patterns becomes rusty, causing difficulty in following the edge because the blade hangs to the pattern binding. A small piece of paraffin wax rubbed lightly around the edge is a good remedy for rusty patterns.

The cutting stroke should always be away from the body. This may seem difficult at times, but the trait can be acquired with practice. It tends to make cutting easier when once learned, because the cutter will not have to twist his arms or body into an unnatural position. It is well to learn to stand upright while cutting. Many will stoop over their boards, working all day with shoulders humped and back bent, and find that they are tired when night comes. It is much easier to develop free-hand movement if one stands in an upright position.

Chapter IV

SORTING STOCK AT THE BEGINNING OF THE JOB

ALMOST important step in beginning a job is a careful sorting of the stock received from the leather room. Leather is nearly always sorted in the stock-sorting department, or leather room, when being put up into jobs; but this sorting is not close enough to take care of the cutter's requirements if he is to get best results.

The reason for this is that, in most cases, he will have several types of patterns, some of which he will crowd the hardest in the beginning of his job. He must necessarily crowd some patterns faster than others in order to maintain quality on these and to assure himself that he will have enough good leather to get all of these good cuts. Having acquired the knowledge as to which patterns take the best leather, he will begin sorting his leather for weight and clear surface and, if it is a colored job, he must watch the colors beginning with a light or a dark shade and carefully shading each skin so that one will not vary more than a trifle from the one which he will cut following it. Thereby he will create a condition where he can cut from one skin to another directly down through the job without much color variation in any size, or sizes, that are cut in regular rotation. On close examination, after the job is cut, he will find that the first shoes cut may differ in color considerably from the last ones cut, or that the first skin cut may have been considerably darker or considerably lighter than

the last, whichever way he decides upon starting. It is generally believed that it is better to start with the dark skins, if weight will permit, because on every skin there will be found dark and light spots. The cutter, having shaded his leather from the color in the back or body of the skin, will find that it runs darker in the heads and legs in most cases. Therefore, if he cuts one dark skin and starts into the following skin which may be a trifle lighter, he will find that the leg cuts on the following skin will still be as dark, or possibly a little darker, than in the back cuts in the skin preceding it.

As to weight, we would say that the heaviest leather must be carried in the large size shoes. A little reasoning will show why this rule must be followed. The large shoe is subject to the most severe wear, being worn by a person of greater physique, thereby having more weight to carry and more strain put against it. Sort the heavy skins for the large sizes and run into lighter weights as the job progresses. Always bear in mind that the large sizes should be cut first, because they are the hardest to procure and once out of the way, the job is more easily handled. In sorting for large sizes, it is well to watch the heads and legs and, where weight will permit, select wide legs and wide heads, also, to be used in the large sizes. A size 6 quarter will go into a much smaller leg than will a size 11. This explains why wide open heads and legs should be used for large sizes.

Cutter Should Count "Footage"

The stock should be carefully counted to see that the footage corresponds with the markings on the bill.

Shoes are cut according to certain allowances. The cutter will be allowed a certain amount of leather to cut a required amount of shoes, and in most cases, his allowance will be marked upon his bill. He will also find a place on the bill where the footage of leather given to him is entered. After totaling his stock, he should see if his figures compare with the ones entered in the bill. Sometimes a stock clerk will charge a cutter for a skin which has not been issued to him. Sometimes the stock clerk will issue a skin to the cutter without charging it to him. Always be careful and prompt about reporting any error found in the checking of jobs. Honesty is the best policy and may save embarrassing explanations later on. Cases have been known where stock clerks would purposely put an extra skin in a job to learn whether or not the cutter is checking his stock. This should be remembered by all cutters and when a skin is received for which no charge has been entered, prompt correction should be requested.

A few more words could be said about the importance of sorting stock before starting a job, because if the cutter is to get best results in close cutting, he must necessarily plan his job before starting it. After careful observation of the patterns to be used, he can easily plan his job as to cutting. Close cutting is the most important thing to strive for as this trait will win more prominence for the cutter than all other traits combined—provided he never allows himself to reduce the quality of his cut parts below a certain point as described in a following chapter.

Chapter V

THE IMPORTANCE OF CLOSE CUTTING

IT is very essential that careful consideration be given to close cutting. One can easily learn what constitutes a good shoe and a little practice will develop the ability to detect imperfections in leather; but, when it comes to learning to utilize leather defects, and yet maintain the standard of high quality in the shoe, there is urgent call for intense concentration and careful study.

In starting, we will try to show how the manufacturer is affected by careless cutting practices. Reasoning shows us that his business must be conducted upon a paying basis or he cannot exist. He may be a manufacturer who glories in the fact that his product is of a high standard, or he may be making a shoe of individuality, in the making of which he feels he is fulfilling his obligations to the buying public; or, he may be producing an article at a very low price. No matter what his ideal in shoemaking, his financiers and creditors will insist that his business pay fair dividends, or be liquidated.

Always bear in mind that upper leather and sole leather is the merchandise from which the manufacturer must expect factory dividends. Sales organizations are a separate unit handling the finished product as their merchandise, and the earnings on finished shoes must be used in financing the sales unit.

Stock Margin Needed in Most Factories

In considering the retail store-keeper we cannot get around the fact that he must have at least about twenty per cent margin for operating on a moderately fast turnover. He has his rent, light, heat, help and various other obligations to meet, besides the bills for his merchandise. The factory man has more overhead and liabilities than the merchant, in most instances, because of power bills, royalties and rentals on patented machinery and large pay-rolls to skilled help. Therefore in figuring his leather on a twenty per cent margin, he can safely say that, in a general way, we have not placed it too high.

We will assume that he carries a stock in upper leather amounting to thirty thousand dollars with a weekly turnover of eighteen hundred dollars. Twenty per cent gives him a margin of three hundred and sixty dollars weekly to pay the interest on the money invested, to help in offsetting other factory losses and to cover losses on dead stock. No matter how careful the buyer is in stocking upper leather, he will be stuck at times with a leather on hand which cannot be used without heavy loss, due to the fact that styles are constantly changing in colors and kinds of leather used. These figures are not taken from any actual operating records but are merely given to illustrate that it is imperative that strict attention be given at all times to the conservation of upper leather.

The Careless Cutter Can Waste Profits

Old-time cutters can recall when the "old man" came into the cutting room and upon finding excessively large scraps in the offal box, raved like a wild man. Good reasons he had, when, considering the fact that he was paying a heavy price for leather, the scrap leather in the offal represented the same price per foot as the leather which was going into the shoe. To know that the room is full of operators in whose hands lies the power to conserve or waste with each stroke of the knife, as they feel fit, is conducive to serious thought. The cutter should try to picture himself in the role of a contractor buying materials to construct a building and having a gang of men in his employ. How much consideration would he feel like showing to the man who destroyed material through carelessness and indifference and how long would he debate over retaining a man whose careless ways were the direct cause of daily losses equal to as much or more than his daily wage? How quickly would he decide upon a method of imposing a penalty upon the careless one and a reward for the one whose daily habits show economical traits?

A shoe cutter can, by close study of his conditions, create or develop methods whereby he will draw a line of distinction between himself and the average cutter in the eyes of the foreman and of the owner of the business. He will be quickly recognized as one of the good men whose daily gains are helping to carry some other cutter's losses, if he consistently shows leather

savings. Other than the good he is to his employer, his is a mission among his fellow workers in trying to inspire them to more economical cutting and in helping to offset the losses of those who are not so well developed. We will assume that one cutter, using thirty cent stock, in one day's cutting gains two feet of leather, while another by his side, using the same priced stock, in a day's cutting loses two feet of leather, making a difference of four feet of leather or its equivalent of one dollar and twenty cents in money. Four feet is generally considered pretty close running in cutter's comparisons for a day's work, and generally there will be more of a difference than this. However, just one dollar a day is an item worthy of consideration in the eyes of the owner. It means three hundred dollars a year to him in helping to keep his business off the rocks, and he will not fail to give such an item preference when times are hard and money scarce.

The Money Value of Leather

An occasional glance up and down the line will help to impress the cutter as to the money value of leather. Let us assume that he has in his job, one hundred and fifty feet of leather worth thirty cents per foot, a money valuation of forty-five dollars. He is possibly one cutter in twenty, which means that there is nine hundred dollars in money entrusted to those cutters, each of whom has the power to gain or lose with each stroke of the knife. In one day's time this entire nine hundred dollars worth of material will have passed under their knives, and they will have started upon another lot.

Cutters can often be heard criticising the use of "second sort," or undergrade leather. Before arriving at a decision on this question, the individual should remember that the cutters' loose habits play an important part in bringing about this condition.

Suppose the factory owners have figured the shoe to use a standard quality of leather and find, after the first few jobs are cut, that the figures are running on a very narrow margin or perhaps to a loss. Immediate relief must be sought, and the only way left open is through buying leather at a lower price. If the wearing quality is not to be sacrificed, the cutting surface must be, and the cutter finds himself working in under-grade stock—a condition for which he may, or may not have been partly responsible. However, this condition is one which in the majority of cases, is forced upon the manufacturer by the attitude of irresponsibility on the part of the shop's crew. Always remember that it is the cutters' duty to utilize every piece of leather possible without jeopardizing the quality of the shoe, regardless of the condition of the leather to be cut. This is the service for which a cutter receives his pay, and if he cannot be depended upon to take twenty cent leather and cut it to the best of his ability just as conscientiously as he would higher priced stock, he certainly is not to be considered dependable enough to be entrusted with the cutting of fifty cent leather.

Chapter VI

HOW TO BECOME A CLOSE CUTTER

IN stressing the necessity for close cutting, and to help the beginner, we will lay down a few rules that will enable one to develop the ability to cut closely.

In our previous chapter on sorting stock, we have made some statements upon which too much importance cannot be placed. It is absolutely essential that a cutter sort his stock intelligently at the beginning of his job, constantly keeping in mind the kind of patterns he is going to use and the grade of shoes, or various grades, which he will be cutting.

Many cutters fail to recognize the importance of placing cuts tightly against one another. Some repeatedly lay their patterns $\frac{1}{32}$ to $\frac{1}{16}$ of an inch, and sometimes even more than this, apart, without seeming to feel that they are committing any serious breach of the rules for close cutting. It is well to remember that most estimates are figured to an almost uncanny degree of accuracy in modern shoe factories. If estimates are placed upon work tags, the cutter may observe that in cutting a case using sizes which run from 2½ to 5½, the footage allowance will be somewhat smaller than when cutting a case carrying the same number of pairs, but, with sizes running from 3 to 6. After noting these differences, it would be well to take a size 5 pattern and lay it directly upon a size 5½ and note the very slight difference in margin of pattern showing around the outside of the smaller one. About

$\frac{1}{16}$ of an inch is the width which will be noted, which seems to be a small enough matter when placing a cut. However, if $\frac{1}{16}$ of an inch could be deducted from the outside of every cut made during the day, the cutter who managed to perform this feat would soon be recognized as one of the leaders among close cutters. Therefore, always remember in placing a cut to bring its edges flush up to the edge of the last cut, but not close enough to make a noticeable nick unless it should happen to be on the lasting edge or on a portion of the pattern which is the under-lap of a seam.

Always Work Towards the Back

Always make it a point to work from the sides of the skin towards the center or back. In speaking of the sides, we mean the legs, flank and head, and in speaking of the center, we mean the back. Calfskins and side leather differ in this one particular; side leather, taken from a larger animal and split down the back bone gives us the better stock near the back side of the piece. To return to the rule laid out in the beginning of this paragraph, the first thing to be done in cutting a skin is to get the leg cut away at the butt end of the skin. Having done this, it is well to determine upon the first cut to take care of the flank pocket just above the leg, and then proceed across the skin towards the back, planning each preceding cut before making the one at hand.

A simple rule may be laid down in making these cuts, which is to endeavor always to keep the leather in front of the pattern or above the pattern, making

the pattern always lay back tight against the cut edge, which should be next to the operator.

It will be noted that the different patterns are of different shapes, some having large curves on one side, possibly a sharp curve on another, and a comparatively straight edge on another. These are things to be taken into consideration when laying a pattern, for, if a circular side is pressed against the straight side of the previous cut, a noticeably large scrap will be forthcoming. Wherever possible, concave edges should be laid against convex ones, or vice versa.

When the surface of the stock will permit, there is nothing that will surpass a carefully thought out system of laying patterns. A good planner can devise a system of laying quarters or vamps one against another without changing the pattern in his hand, and can cut them much closer than by any method of haphazard placing, but care must be exercised in this practice or the quality of the shoe will be jeopardized.

Too often, we see a cutter throw a skin upon his board and without making any noticeable effort to get the sides trimmed away, take his vamp pattern and cut into the center of the skin. This is bad practice and, while the cutter may be comparatively good, if this is the rule he invariably follows, his figures will continually run much higher than those of cutters around him. There is good reason for this statement. Observe the difficulty encountered in finishing up the last piece of skin. You will have a noticeably large piece of leather upon which no pattern at hand can be correctly placed, this condition making it necessary to

waste a large piece of stock. Use your imagination in estimating how much more leather you would have wasted had you been forced to finish five pieces like this instead of one upon every skin you cut on the particular job at hand. Now picture starting from the center of the skin and working to the outside. When you get to the left flank, you have the left hind leg to cut, making a piece to be finished upon which only two patterns can be used, as compared with the possibility of using any pattern in finishing a piece in the back. In naming these two patterns, we will say an under grade quarter or a tongue. This piece being finished with its alarming loss, you go from the center to the right rear and finish that leg in the same manner. The loss is now doubled. Now picture yourself cutting into the center of the skin towards the head. When you have reached the shoulders, you have a right front leg, a left front leg and the head to finish, making five pieces in all. These must be finished with a second grade or under grade pattern, leaving no choice to use a vamp or tip pattern if the size or shape would permit and making your loss in finished pieces approximately five times greater than it would have been had you finished the one piece in the center working from the outside to start with.

Studies—Made in Placing Patterns on Paper

A great deal of information can be gained in the practice of laying patterns on a clear surface of paper. However absurd this may seem, it is nevertheless a practice which will benefit any cutter who has the

desire to develop himself. In the first place, the cutter will reveal to his own satisfaction, that the estimates given him for his certain allotment of shoes are correct or very nearly so. He will be surprised at the amount of surface that is allowed him for offal in cutting leather. The writer has seen this tried repeatedly where the estimates on a pattern would be questioned by operators. Take enough patterns to cut a pair of shoes on the medium size, then, after determining from the estimates the proper amount of leather to be reckoned for the allowance for one pair, draw this up in as near a square as possible on a piece of clear pattern paper.

As an illustration, we will assume that the particular pair to be cut requires 1⅓ feet of leather. Measure the piece of paper 1⅓ feet long by 1 foot wide. Now take the patterns and try to place them upon this allotted amount of paper, being sure that you get all of the cuts required for the pair of shoes; that the proper amount of them are rights and the proper amount are lefts, and see where you come out. The first attempt may be discouraging. However, after careful observation, it will be noted that there are numerous large pieces between many of the cuts. If failure is experienced in getting the complete pair on the piece of paper, the patterns should be taken to an expert cutter and he should be induced to try laying out the pair of shoes on this. It will usually be found that it can be done and enough space will be left, if the patterns are properly placed, to provide for one extra cut on a medium sized pattern providing the estimates are standard as used among most manufac-

turers. One should be careful in making a statement that it cannot be done.

It has been demonstrated time upon time, and usually it will be found that there is a man in the organization who can place this extra cut after a few minutes' study. Repeated practice of this kind is very good. It will give the cutter a practical knowledge of cutting estimates and will develop his ability to visualize the possibilities in a given amount of space. He will quickly become an accurate judge of size and shape. After having practiced this until the novelty is worn off, a new feature can be added. A certain spot in the piece of paper may be marked off to indicate a scar or imperfection, after which, again try to place the patterns to get the pair and see that this spot is left in the offal.

In the attempt to develop into a close cutter, it is necessary to make a study of all pattern peculiarities as they come under observation from time to time. Repeatedly it will be found that there is something about a pattern in the fitting or in the fancy stitching or in the perforation which will be of advantage to the cutter if he knows what is going to be done to the shoe in the fitting room. These items will be given more consideration in a following chapter, so we need not dwell upon them here. In this connection, it is good practice, upon the introduction of new or novelty shoes into a factory, for the superintendent to take a finished sample into the cutting room and explain to the foreman and cutters the particular operations in the fitting and making which might enable cutters to produce more economically.

Chapter VII

WHY IT IS NECESSARY TO CARRY TWO OR MORE SIZES OF PATTERNS

IN developing one's self into a close cutter, it is necessary to give careful thought to the advantages of using two or more sizes of patterns continually. Often, there are jobs given out which carry only one grade of shoe, and, as experience teaches that no true leather has the same quality or weight throughout, there comes the question of how to cut a uniform shoe without laying each pair out by itself.

In carrying two sizes of patterns, it is customary to use the smaller size for the light weight cuts. Small-size shoes are not subject to the severe wear that is given to larger ones; therefore, they may be made of lighter weight stock without working an injustice upon the consumer. In fact, this is to his advantage, as the individual with a small foot often cannot endure the chafing of excessively heavy leather. In cutting shoes, this fact should always be borne in mind. For instance, when the cutter starts his job, he expects to get the large sizes first; so, the heavier skins are selected for beginning. After making a few cuts, however, he discovers he has worked into a light piece of leather which will not mate his previous cuts in weight. Reasoning tells him that the shoe will be off balance if light

and heavy parts are mated; so, he decides to use his small size pattern here. Conscientious cutters often try to carry three sizes, so that one size can be used for leg or head cuts thereby, making a more finely matched shoe.

Other than the importance of weight matching, the small-size pattern is useful in close cutting; because the operator often finds his calculations too meager to accommodate the size he is pushing, while his small size will fit into the space quite readily. This is to be seriously considered, as the cutter who can arrange his cuts so that he can get one small-size tip or quarter extra out of a ten or twelve foot piece is on his way to distinction as a close cutter. The operator should always look closely at the last piece of skin to be cut for the same reason. Sometimes, he will find that the piece he intends to use for cutting a quarter without a noticeable loss is large enough to make two tips or two foxings; still, if in having cut the quarter he finds it to be unsatisfactory, he has spoiled his chance of getting more than one foxing or one tip.

Two Sizes Desirable in Matching Colors

In kid leathers, the use of two sizes of patterns will materially aid in matching the grain uniformly, allowing for one size to carry the coarser cuts, etc. In colors, it will often be found to advantage in matching, especially where legs are noticeably dark. In calf leather, there is often quite a portion of light weight leather on or just behind the shoulder, pro-

viding an ideal place to obtain small-size vamps, if the fat wrinkles are not too prominent.

It is well to remember that the small size is essential to quality cutting as well as to close cutting, and the practice of using small patterns should not be dispensed with, no matter how hard it is to get the particular pattern desired. A cutter should not allow a minor difficulty of this nature to jeopardize his reputation in any way as a master of the craft. If necessary, a paper pattern may be used to block the cuts wanted until the desired size is obtainable.

Chapter VIII

"WORK-IN" PATTERNS AND THEIR RELATION TO CLOSE CUTTING

FIRST, we will define clearly, so that the cutter can understand, just what constitutes a "work-in" pattern. As the term "work-in" indicates, this pattern is designed for the purpose of taking care of under-grade leather and meager places which cannot be utilized by carrying the regular pattern. The "work-in" pattern is usually a foxed shoe of some sort, making the quarter in pieces to be stitched together in the fitting room, thereby creating the possibility of using small pieces of leather and of more accurately placing under-grade materials.

The "work-in" shoe has a definite purpose in the industry. It creates the possibility of selling a low price shoe to the consumer. Many times a "work-in" shoe may be made to appear quite dressy and, in some cases, it may even look snappy.

The use of a "work-in" pattern is of paramount importance to the cutter. No matter how skilled he may be, there are times when the quality of the stock will not permit of cuts for first grade shoes, and he must necessarily lay aside a piece of leather which can very successfully be used in making a low price shoe. He should always bear in mind that a piece of leather when cut into a shoe costs no more than the same piece thrown into the scrap

box; and that the re-sale value is greatly increased if shoes are made of it.

Some manufacturers do not make it a point to push "work-in" shoes, as they seem to under-estimate their commercial value. Most of them, however, do provide a shoe to take care of all under-grade cuts on practically every stock used in the factory.

Judgment Required in Cutting By-Product

It is essential that the cutter exercise good judgment in cutting "work-in" shoes if he does not want to make the shoe appear noticeably cheap or shabby, and he cannot crowd coarse broken surfaces into the prominent part of it. However, where leg cuts, and head and neck fat wrinkles are not permitted in the first grade, they make very choice "work-in" shoes, if properly cut. Stretch should be observed, and care should be exercised to see that prominent lines are running lengthwise of the shoe, always bearing in mind that the front should be the best looking. The cutter should try to produce a good looking product from this inferior stock. Such a product has a commercial value to the manufacturer because it gives him a revenue from material which cannot be otherwise used. If this can be made an attractive product, the demand will always exceed production. However, the shoe should never be cut above grade. In justice to the higher quality shoes, the manufacturer cannot afford to make a too attractive product out of his "work-in." This

is always figured on a close margin and should not be considered as a money maker, but as a money saver.

Observation of the process of manufacture will reveal to the cutter various tricks which may be employed in the cutting of the "work-in," whereby inferior stock may be made to appear very desirable in the finished shoe. The cutter's interest is involved because, as heretofore explained, the "work-in" shoe is his salvation when difficult cutting conditions are encountered in the use of under-grade upper leather.

We would warn again against the practice of putting broken surface cuts into this shoe, and again we would warn against making it too good. Remember, the manufacturer needs a limited volume on this; that he is giving the public a good product for the money, but it must not be so good that it will create a demand which will jeopardize the sale of his higher grades.

Chapter IX

LEARNING SEAM MARKINGS; HOW TO USE THIS KNOWLEDGE TO ADVANTAGE IN CLOSE CUTTING

IN the previous chapter, we have emphasized the point that there is a place in every shoe for almost any leather imperfection which may be encountered by the cutter. The trick is to acquire the knack of properly placing all imperfections, so that the shoe, when finished will in no way be lowered in class so far as looks or quality are concerned. Leading up to this, one point at a time, we shall dwell first upon seam markings.

Seam markings can nearly always be determined by the pattern; their location is plainly marked with eyelets, into which the cutter inserts his awl after finishing the cut. We have talked before about the importance of being accurate at all times in placing these stab marks and wish to call attention to this matter again. If a stab mark should be 1/16 of an inch too far forward, or 1/16 of an inch too far to the rear, or if a left quarter should be cut with the stab mark forward, and the right cut with the stab mark to the rear, then the shoe goes to the fitting room and is fitted exactly to those marks. The result is that, in the lasting department, the shoe will be thrown ⅛ of an inch off center in balancing the throat unless it is "tricked" by the puller during his operation. Trick lasting is never to be encouraged, but it is

always employed as a method of overcoming difficulty in straightening up off-balance shoes caused by improper stab marking and improper fitting. Too often, cutters fail to realize the importance of accuracy in stab marks, thereby working hardships upon all operators concerned in fitting and lasting.

Cutters Should Know How Shoes Are Fitted

Another way in which the cutter may improve himself is to learn how the shoe is fitted together each time a new pattern is installed. If he knows exactly where the laps are, he will be able to hide some minor imperfections under the seam lap and will know better how to place leather quality properly, so as to aid the fitting operation. It is never advisable to place a soft, spongy portion where there is to be a seam lap, especially if this seam is to be prominent in the finished shoe. Spongy leather will promote wrinkled and crooked fitting, due to the fact that the feed on the power machine will not properly force the material through. Also, spongy leather does not provide a uniform body for the needle and thread to work in and will be the cause of shabby looking work.

However, if the cutter does not care to look further than his own operation, he can readily see how a scar or fat mark which is not permissible in the prominent parts of the finished shoe is all right if hidden by a seam-lap, hence the mercenary motive in learning seam markings.

Seam markings may be learned by piecing a pattern together. If the cutter does not undertsand this so that he can do it without the aid of an expert, he should get the various cuts, with their regular markings, on paper patterns and take them to his foreman or to some other man in the department who is versed in pattern making and fitting and who can explain to him exactly how the shoe is fitted. He will be surprised at what he learns, once he has taken up this study. The novelty of the study alone makes it fascinating enough to stimulate interest in almost any ambitious cutter, and he will find himself constantly watching for new models in order to have the opportunity of solving other like problems.

Always remember that an ordinary lap seam provides about ⅜ of an inch of surface for hiding imperfections under the lap. Here is the cutter's opportunity to get away with some of the things on the surface of his leather which do not look like first-grade shoe material. Care should be taken, however, that no weak, over-tanned, or defective material is hidden in a seam lap, for, it will not hold the stitches, and the shoe will become damaged.

Chapter X

SCARS, IMPERFECTIONS, ETC., AND HOW TO UTILIZE THEM

IN this chapter, we will explain more carefully some of the imperfections which may be encountered by the cutter as he plies his trade. Brands, grub holes, flesh cuts, acid burns, and overtanned leather are all to be found, and are to be avoided by the cutter, day after day. He should learn what is the cause of these, how they affect the resiliency of leather and, also, just what they look like when they appear upon the finished surface of a shoe. It will be noted that scars are not so numerous in the skins which are tanned from immature animals. They are the marks upon the skins of animals which are caused in the healing of an injury. Nearly every one at some time or other has been severely cut or scratched, and, in watching the healing process, he has wondered if there would be a noticeable scar after the wound had healed. The healing process in animals is no different from that in people. Scars always show in the tanned leather. There is question whether they do not show more plainly in leather than in the skin of the live animal.

Scars have the appearance of a glazed pencil mark, and they vary in prominence. Some may be too faint to be noticeable, while others may be heavy enough to be seen at a distance of 15 or 20 feet. They never should be placed in the prominent parts of the

shoe, especially not in that part of the vamp which protects the upper front of the foot, and never in the part of a tip which shows. Always remember that the front part of the shoe must look the best. Scars should be placed under seam laps or in the lasting allowance, or, if they must be utilized more than this, they should be placed in the upper part of a quarter and running lengthwise of it.

Brands as Imperfections

A brand is the result of a burn inflicted with a hot iron. It is used to mark cattle on the ranches in the west, where fences are not used and where some means of identification and recognition must be had by the rancher in claiming his property. It is not considered good policy to use a brand in any part of the shoe where there is to be any wear or flexibility; and the cutter should try to work as close to the brand as possible without using it at all unless putting perhaps an eighth of an inch of it in the margin in lasting allowance.

Grub holes are sometimes supposed to be shot marks, but they are always found along the backbone of skins or hides taken from beef animals, and they are not found in calf skins proper. They are the result of the incubation and growth of a grub-like worm under the skin along the backbone of beef animals. There is a question as to how these grubs get under the skin. Various authorities advance different opinions on this. However, we know that

the grub grows and, starting from a small worm in late Fall and early Winter develops into quite a large parasite before warm weather in the Spring.

Life Cycle of a Grub

Country butchers will always like to feel the back of a beef animal before buying, in order to determine the extent of damage which has been done to the hide by grubs. The worms can be felt quite easily; there is a lump which feels like a small boil to indicate the location of each. After a certain period in the worm's development, it may be squeezed out by pressure. If left to come out by itself, it works through after warm weather has set in, generally about the latter part of May, and develops into a fly which again places its eggs, starting the cycle anew. This explains why calf skins do not show them; not having lived through one entire year, they have not provided a haven for the completion of the cycle of the grub. Every place where one of these grubs makes its way into the outside world, a circular shaped scar about the size of a BB shot is left, thereby damaging that part of the skin for use in any prominent part of a finished shoe. Skins will often be seen where there is a margin of from three to six inches on each side of the backbone completely damaged by grubs, making it useless for anything except eyelet stays, or for the forward part of a vamp, if this forward part is covered by a tip.

Flesh Cuts and Their Utilization

Flesh cuts are the direct result of inexperienced hands in removing hides. Many people wonder why there is so noticeable a difference in the demand for packer hides as compared with country hides. This is one of the items for consideration. Packer hides are taken off by skilled flayers, men who seldom damage a hide, while the bulk of country hides are taken off by inexperienced men, and numerous cuts can be found all along the legs, around the head and neck, and often on various parts of the body. Flesh cuts are not permissible in shoes except as provided for by seam laps. Care must be taken in using them in seam laps, because they make a weakened place for the holding of stitches and will often tear if the seam runs lengthwise of the cut. It can readily be seen why slaughter cuts damage the material value of leather. The student cutter will soon be able to detect a flesh cut from the grain side of the leather. Often, a beginner will turn a skin over and tap it lightly with his hammer or some small instrument of similar nature, leaving an imprint on the other side so that he will be able to detect the flesh cut. Others will feel beneath the skin and mark it with a crayon upon the grain side. However, there is a question whether or not this practice is a good one, for it stimulates the habit of depending upon something to warn of flesh cuts, and, if the cutter does not resort to artificial markings, he will find that he is soon able to see a faint, light-colored streak,

similar to that which would have been left by a close fold, which tells him of the flesh cut beneath it. A little study will soon acquaint him with this appearance, and the trait of locating flesh cuts is thus naturally developed.

So-called acid burns are spots upon the skin where there is the appearance of there having been spilled upon it drops of some liquid or powder which burns, dries, or hardens the grain surface of the leather. These are prohibited in the finished shoe, because a little strain or wrinkle causes the surface to break, thereby damaging the product.

Test for Cracky Grain

Occasionally, a cutter will find a skin in his job which seems hard and dry to an unreasonable extent. He should test this leather carefully to see that it is all right before cutting into it. It may be what is called an over-tanned skin. The best test for this is to fold the skin, grain surface out, lay it flat, and draw the hand over the fold, applying considerable pressure. If it is dried or hardened to the extent that it will not be usable, it will show a series of cracks in the grain where the fold has been made. If the cutter has not surface available where he can lay the skin flat, he may simply fold it, holding the fold with one hand and drawing the thumb and forefinger lengthwise over the folded surface, in the same manner in which he would fold a sheet of paper, and the result will be the same series of cracks if he uses pressure. In case the skin is so lifeless

that it cracks, the matter should be reported to the foreman at once, and the cutter will be advised what to do with the skin in question.

The cutter should constantly bear in mind that there is a place in every shoe for practically all imperfections, except heavy brands and over-tanned leather. The knack is in applying the knowledge of how to use them. Some cutters will at times go too far in placing imperfections beneath the tip. It should be remembered that a heavy, stiff piece of leather here is not good shoemaking because it is an impediment to lasting. It should also be remembered that a large hole should not be put under the tip, as it will create a void between the tip and box toe in lasting, and the imprint of it can be seen clearly on the surface of the finished shoe.

Chapter XI

THE USE OF KNOWLEDGE REGARDING LASTING ALLOWANCES

THE lasting allowance is that portion of the upper which is drawn under the bottom of the last and fastened between the insole and outsole, making the upper fast to the bottom. This part of the shoe must necessarily be tough, but it need not be clear stock so far as looks or grain are concerned. Its position upon the pattern can be determined by inquiry, if the cutter is not familiar with it, and it should always be taken into consideration when cutting the shoe. About 3/8 of an inch is the margin which a cutter may safely depend on. Pattern makers usually allow 1/2 to 5/8 of an inch, depending upon the particular kind of shoe, but various irregularities are encountered in the process of manufacture which sometimes make this margin deviate from the standard set forth by the pattern maker; so, even though the cutter knows the exact amount provided for in the particular factory where he works, he should not use the full margin, but rather deduct 1/8 of an inch therefrom and consider the remainder as the allowance to be safely considered.

The Cutting of Nicks

When speaking of lasting allowances, there always comes up the topic of nicks. Nicks can safely be put into the margin, provided they do not make an

indentation deeper than 3/8 of an inch, and provided they are of an angle of not more than 45 degrees. Occasionally, a cutter will leave a nick as large as a 90 degree angle, but this is not good practice. A 45 degree angle will draw down over the edge of the last, and, in the pleating process, the nick will be filled, due to the fact that the leather is being

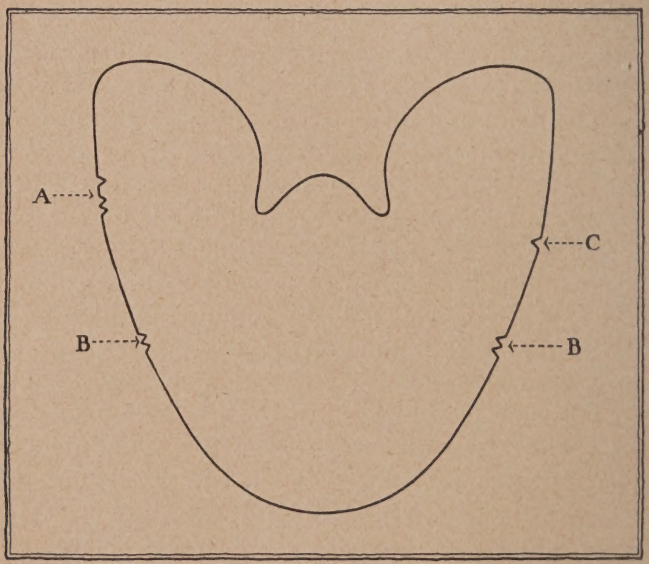


Illustration shows a type of Blucher vamp and what it looks like when cut on a machine. The point indicated by arrow at "A" is size marking and must not be destroyed. Care should be exercised in placing cuts together or nicking, and that size markings are left exactly as intended. Points indicated by "B" are nicks intended for the use of setting a tip. Like point "A," they must be left intact. The point indicated by "C" shows how a nick may be safely placed

turned inward and that not so much stock is required to cover the surface. In nicking cuts, the cutter should be careful not to do anything that will interfere with any seam markings on the pattern. When using a clicking machine, he should be careful that his nicks do not interfere with the size nicks upon the die, so that the size markings will always be plain, and he should also see that nicks used to locate the position of a seam are never destroyed.

Always remember that the lasting allowance should be of strong leather. Weak places, such as flesh cuts, over-tanned, exceptionally light-weight, and spongy flanks, should not be used. Flanks may be used occasionally, but the practice must be limited, and caution should be exercised to see that it is strong enough to hold a tack securely and that it will not stretch enough to permit of the shoe being drawn out of shape. The quality of the shoe, and service it is to give its user, depend a great deal upon how well the sole and upper are fastened together. If the sole is good, and the upper is good, the shoe will be good, providing it is securely fastened at the seams. Always remember that good merchandise promotes a prosperous business, and that a prosperous business provides steady employment with good working conditions.

Chapter XII

CUT-OUTS, PERFORATIONS, BUCKLES, BUTTONS, BACK-STAYS, OVERLAYS, ETC.: WHAT A THOROUGH KNOWLEDGE OF THEIR POSITION ON THE SHOE WILL DO FOR A CUTTER

FOLLOWING the discovery of King Tutankhamen's tomb came the almost universal use of cut-outs in the designing of women's novelty shoes. The application of cut-out designs has developed from grotesque to finesse and, in some sections, has largely passed from

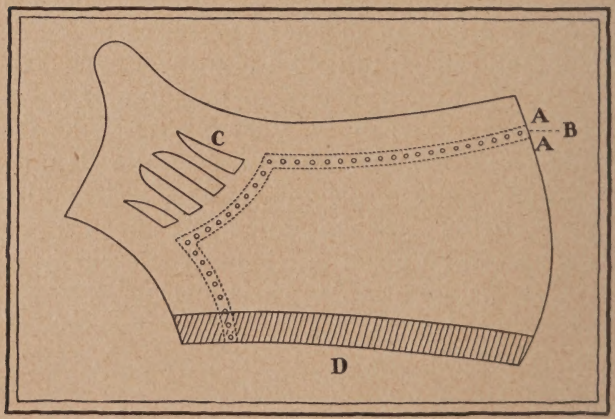


Illustration shows a type of novelty quarter. Points "A" indicate a panel stitch. Point "B" indicates a row of perforation between these two stitches. Point "C" indicates four cut-outs. Point "D" indicates margin to be safely allowed for drawing under the last. Thorough knowledge of the location of these positions will help the cutter to cut closely

the trend. Constant use and study will develop the finer points in any practice, and we now see, in novelty shoes, cut-outs which are of rare beauty. That the cutter should be familiar with the open work upon the particular shoe which he is cutting is imperative. He will find that he can sometimes place an imperfection in a quarter or a vamp which would make it appear to be worthless, but which, upon tracing the cut-out design over that particular cut, is found to come directly in the space which is to be cut out later in the process of manufacture.

Another point of consideration is that open-work shoes do not hold their shape as well as shoes of solid structure. So, a firmer stock must be used where cut-outs are to be placed, making possible the execution of a perfect stitch around the outline of the cut-out and guarding against stretching out of shape. The writer has known instances where the fitting room foreman would carry a part back to the cutting room with the assertion that the cutters were doing very poor work and, upon placing the part under the cut-out pattern, would find that the point in question would come directly where there was a cut-out.

The term perforation is used to indicate a series of fine holes, which may be in a row or in groups and may vary in size from that of a mere pin point to as much as an eighth of an inch across, and sometimes even larger. They may vary in shape from round to triangular or square and sometimes are of other design. They are placed upon shoes to beautify them. The cutter may learn of their position by making inquiries

of the foreman, and he may use this knowledge to advantage in working up leather where there are minor scars and other trifling imperfections, which may be camouflaged or completely hidden by the perforations. Line perforation is usually accompanied by one or two

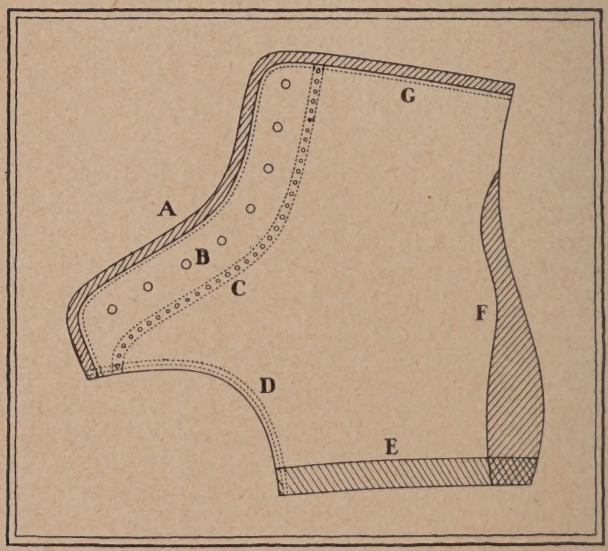


Illustration is of a full Blucher quarter. "A" indicates a folding edge. "B" indicates the relative position of eyelets. "C" indicates two rows of panel stitch with perforation between. "D" indicates stitching at side used to secure the quarter to the vamp. "E" indicates portion which is drawn under the last. "F" indicates the part which is covered by a back stay. The dotted line at "G" indicates a row of stitching along the top to secure the folding and lining. These markings are not always the same, and the cutter should familiarize himself with the particular style being used at the time in the factory in which he works

parallel stitches, thereby creating a panel design about one-eighth of an inch wide and making it possible to cover up the utilization of minor imperfections.

Many times we see novelty shoes with fancy buckle ornaments. The position of buckle ornaments is directly related to cutting, for these fancy buckles may cover a portion of upper leather, rendering it invisible to the eye of the critic or of the consumer. We would caution at this time against trying to hide any defective material taking into consideration appearance only.

Buttons should have a firm piece of leather for their fastening. The part of the shoe into which buttons are to be set must be firm enough to hold the thread securely. Therefore, the cutter should know of their position and govern his cutting accordingly. On staple shoes, especially, we find the back stay. This may vary in width from one-quarter of an inch to an inch and, sometimes, even wider. Of course, back-stays cover completely the leather upon which they are sewed. Here is a good opportunity to hide imperfections. Even a damaged grain surface can sometimes be safely put beneath a back stay without detriment to the quality of the shoe, and the cutter should take advantage of the back stay location at every available opportunity.

Over-lays are much the same as back-stays insofar as the utilization of stock is concerned, but their position upon the shoe is not universal, and the exact location should be learned before determining how to place imperfections beneath them. It is not safe to put prominent flesh cuts beneath an over-lay, in most cases,

for over-lays are generally of light-weight stock and are not strong enough to carry the strain of the shoe in making or on being worn, and, should the flesh cut be weak enough to give way, the over-lay will not hold it.

Eyelets are used in shoes that lace. Eyelet rows are generally reinforced with a stay of buckram or

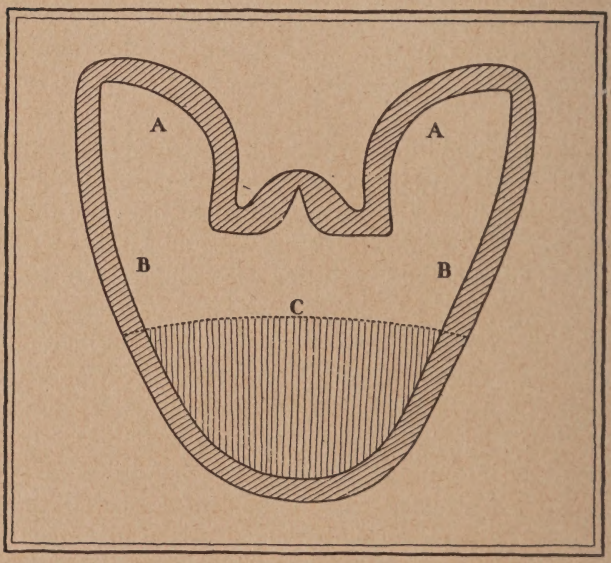


Illustration is of a full toe Blucher vamp which has a tip. Point "A" indicates the portion which is covered by the quarter after the vamping operation. Points "B" indicate the margin which is drawn under the bottom of the last. Portion "C" shows the part of the vamp which is covered by a tip. A vamp of this type may appear a little formidable on badly defaced stock until the cutter has seen an illustration of it such as the one given. The clear portion indicates the amount of clear leather required to cut this vamp

some similar material and, often, a leather stay upon the inside of that. Thus, a very solid base is formed for the fastening of the eyelet. Knowing this, we would say that it is not as imperative to get a solid stock in an eyelet row as it would be to get it in a row where buttons are set.

In cutting shoes where the toe of the vamp is plain it must always be borne in mind that the toe should be as clear and fine in appearance and as solid in fibre as any part of the vamp. But, where a tip is to be used over the fore-part, conditions are changed. The tip must be clear and fine, but it covers a portion of the vamp which may carry many imperfections.

In cutting plain toe vamps, there is sometimes an imitation tip mark. The cutter should not confuse tip shoes with imitation tips, as the imitation requires the same care in cutting the vamp as would a plain toe vamp. It is also necessary to know whether the vamp is an imitation tip or plain toe, so that, if the cutter is required to make stab marks for fitting, he will not omit these marks for setting the decoration. He should always be exact when placing stab marks so that the shoe, when fitted, will carry the proper lines to finish into a beautiful product.

Chapter XIII

FLANK POCKETS; WHAT SPONGY FLANK CUTS LOOK LIKE IN THE VARIOUS PARTS; HOW SOME OF THIS LEATHER MAY BE UTILIZED

THE term "flank" or "pocket" is used to designate a portion of the skin or hide just in front of the hind leg and to the rear of the foreleg—those portions which fold under the legs in walking or in other movements of the animal. Nature has provided these flexible places in the pelt in order that they would not be impediments to the animal's activities, and she has not provided that the protective qualities of the skin at these points be as durable as at other points because of the fact that they are not so readily accessible.

Upon the tanned skin, these parts have the appearance of modified blistery surfaces. The first impression a person will receive of them, upon observation, is that, if they were cut from the skin and thrown into a tub of water, they would readily absorb moisture, after the manner of a blotter. Hence the term "spongy" which is sometimes used to describe these parts. Flank leather, in upper stock, feels as soft and mushy as does flannel cloth. This can readily be explained when one is familiar with the fiber of leather.

Leather is composed of minute fibers resembling small hairs. They are closely interwoven, and it

is noticed that, in the spongy parts, there are not so many of these fibers in a given space, nor are they nearly so firmly imbedded into one another. Flank parts are useless in any part of the shoe where there is noticeable wear or strain because they will stretch to some extent in any direction. Therefore, the place for flank cuts is in tongues of a medium grade shoe, using care, however, to see that the base of the tongue is of the most solid portion, so that it can be properly and securely stitched to the vamp in the fitting department.

Where a tongue is to be folded along the edge, the use of flank pieces is detrimental, because a good clean job of folding is difficult where leather is so lacking in body, as in these pieces. There are times when, technically speaking, a tongue cannot be classed as a tongue. Especially is this true in novelty shoes. The construction of the shoe may be such that the part considered as a tongue is exposed and forms a distinct part of the outer wall of the shoe. Therefore, in this particular type, the texture of the tongue should be given as much consideration in cutting as any other part.

Flank Pockets to Be Used with Discretion

Some manufacturers make a practice of driving tips into the flank. This is not good policy on any but cheap shoes and not at all permissible in those of good quality. The grain is always coarse, and, while the tip may pull out comparatively smooth when drawn over a solid box toe, it will never have

the appearance of a nice, fine grain piece of leather. In addition, it will scuff easily and will not resist much rough usage. The most plausible solution for the use of flanky leather in the outside of the shoe is to place it over the counter, at the heel. Good judgment must be used here in order to be sure that the leather is not too spongy, that it will draw down smoothly and firmly in lasting, and that the stretch is right, before determining upon a cut of this kind. In many factories, even this practice is not permitted. A small portion of spongy leather may be allowed around the edge of the eyelet-stay, and sometimes along the top, if the quality of the shoe is not too high. However, we come again to the question of folding; and soft leather should not be used to such an extent that it will lessen the quality of folding results in the fitting room. It will be remembered that a good top band and eyelet-stay will help to support a moderately flanky piece of leather, insofar as the matter of stretch is the point being considered.

Moreover, it must be particularly remembered that recommendations which are both safe and true when applied to cheap and medium staples may be far from true when urged in connection with the modern woman's style shoe. In this type, the heel and quarter are as visible and as much observed today as are tip and vamp, thus rendering many carefully worked out principles which are true on men's and boys' and high-cut staples inoperative in modern production of women's fine footwear.

Chapter XIV

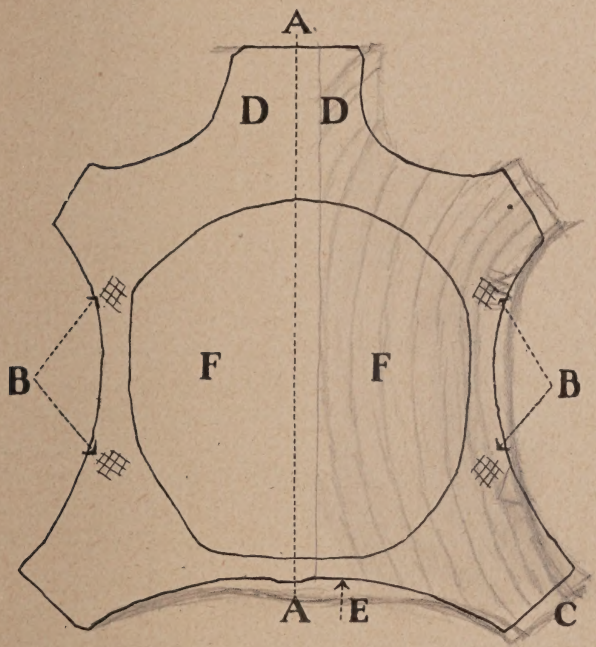
DEFINING HIGH AND LOW QUALITY PORTIONS OF THE TANNED HIDE OR SKIN: HOW TO UTILIZE THIS VARIATION OF QUALITY

LEATHER quality depends primarily upon the species of animal from which the hide or skin came. It is also dependent upon the animal's age, the conditions under which it lived, its health, and the method of tannage.

Upon examining the tanned skin or hide, we find that there is still considerable variation in quality, according to the location upon the animal's body. If we draw a line distant about one-half inch to one inch parellel to and on each side of the backbone and allow a margin of about two inches along the butt, then proceed to an indentation at the hind leg approximately equal to the amount of leg extension, from there straight along the belly to a point of indentation at the front leg equal to front leg extension, then directly across the skin to the backbone, we have outlined the approximate division between the better and poorer qualities. There is a margin along the belly of from two to six inches or thereabouts, depending upon the size of the skin or hide, which is inferior in quality. The portion along the back and side proper, beginning from one inch below the backbone, to the belly margin is considered the

best quality of leather. No exact rule can be laid down, but the one given here may be as safely depended upon.

The fiber of the leather along the back from the butt margin to a point just back of the shoulders is more firmly imbedded, making a much firmer body substance, which accounts for its superior quality. Shoulders are sometimes quite heavy and generally do not have as good quality as the portion farther back on the pelt. Legs usually show considerable stretch and are not to be considered in all shoe cuts, but rather in cuts where the stretch can properly be utilized if the quality of the shoe is not above standard. Neck or head leather is even poorer than the shoulders, usually carrying many prominent fat wrinkles and often being very stretchy and scratched. Fat wrinkles, providing they are not too prominent, can be used in the making of shoes if good judgment is exercised in placing the cuts. They are found on calf skins, veals, kips, and sides taken from cattle, and on the skins or hides taken from mature animals. These wrinkles are so prominent that it is frequently impossible to utilize these portions, even in the cheapest shoes. They are caused by the flexing of the skin over the top and along the sides of the neck when the animal raises and lowers its head. Hence, we can readily see why the hide from the grown beef is more prominently marked with lines running in all directions than is the calf skin.



The above illustration is typical of a kid or calf skin, and, from it, the cutter may gain a definite idea of the position of the various grades to be encountered. The dotted line between points "A" indicates the approximate position of the backbone. "B" indicates the position of flank pockets. The projection "C" is one of the four legs. Points "D" are the neck section. Margin indicated at arrow point "E" is the stretchy margin which rounds over the rump on the living animal. "F" indicates the relative portion which is of the best fiber solidity and has the finest grain. The drawing, of course, is not exact, as no two skins are identical in every respect. Therefore, an exact and positive rule cannot be set

Grain of Leather Dependent upon Thickness and Fineness of Hair

Natural grain, as spoken of on upper leather, is that appearance caused by the marks left by removal of hair. It varies in many ways. Different breeds of animals have different characteristics in respect to their hair. One breed of kid may have a coarse hair; another may have fine hair. If the hair is fine, the root will be smaller and the opening in the skin much less prominent. Other than this, the hairs are set much more closely together in the skins of some animals than in others.

The age of the animal, also, has considerable to do with the grain. For instance, in comparing the grain upon calf skin with that of grain upon side leather taken from a mature beef animal, we will assume that upon the calf's body there are as many hairs as upon the body of the beef into which it might grow, but that they are more closely set in the smaller area, so as to provide for ample covering for the animal when it comes to maturity.

Grain varies likewise according to the way the hair lies. Considering the backbone as a dividing line, we will always find irregularities in grain. Other portions of the body show grain peculiarities which can be accounted for by study. It will be noted that the best grain is always at the part of the skin where the best leather quality is to be found. Vamp cuts should be placed in these best parts. It is usually considered the rule to take the vamps

out of the back, allowing, of course, the margin as outlined along the backbone. We would caution against the use of stiff bony pieces when cutting vamps, because they cannot be efficiently handled in the lasting room, when trying to make a good product. Tips should be taken where the grain is the finest. They must be firm but flexible. Quarter cuts formerly could be secondary, as to both grain and quality, but, on the woman's style shoe of today, the quarter is almost as prominent in quality as the vamp. Usually, fat wrinkles are permissible to a certain extent on quarters if the line is from heel to toe and the cuts are properly matched. Here is an opportunity for the cutter to make use of his second size pattern so that he will get one size of quarters completely cut out of the fat wrinkle parts, thereby assuring himself that they will not be improperly mated in the finished shoe.

Chapter XV

WHY QUALITY VARIATION IS PERMISSIBLE IN THE CUT UPPER

FIRST impressions are usually lasting ones; therefore, the shoemaker should constantly keep the appearance of the shoe in mind as a first consideration.

The forepart of the shoe is the first to attract the eye. Therefore, it should be best in appearance; so, when the dealer or the customer first sees the product, his impression will be a good one. The top and rear of shoes are of less importance, especially in men's. The trousers legs partly hide these parts of the shoe when worn, and, therefore, we consider their appearance of secondary importance. Who would think of judging the quality of shoes a man is wearing by walking behind him? Who would hesitate to give an opinion if he could see them directly from the front?

Considered from the standpoint of demands other than appearance, quality requirements are most exacting in the forepart of the shoe because of the constant flexing of the joints in the forward part of the foot. Here, though we find that authorities differ on tip requirements, some common sense principles may be advanced in considering different types. Shoes which are built with box toes do not necessarily require as fine a piece of stock for good tip appearance as do those having soft toes.

Boys' shoes are subject to severe wear, especially at the toe. In cutting these, extra precaution should be taken to see that a good quality of leather is in the tip.

Forepart of Upper Must Be Best

The vamp must be of the best stock so far as wearing qualities are concerned. The constant flexing, in walking, brings considerable strain upon the forepart of the vamp, and, if this part is not of solid fiber, this action will create ugly wrinkles which weaken or crack after a short wear, especially if the wearer's feet perspire. The moisture finds a good harbor in the wrinkles of the vamp, and this brings about chemical reaction detrimental to leather.

The need of carrying first grade leather in quarter cuts is not so important, as these are subject to less strain. There is not much bending of a quarter on an oxford or pump, especially in the rear part. Quarters of high shoes, while being constantly flexed at the ankle, are not subject to such severe pressure as is the vamp. They should not be as stiff as vamps, for the ankle is more sensitive than the forepart of the foot. Tight lacing of stiff quarters over the ankle bones will produce chafing and will promote wrinkles in the forepart, which sometimes create blisters. The shoemaker should bear this in mind when cutting full quarters. Clear, good looking cuts, which will stand up and maintain their shape, but which are not stiff enough to chafe the ankle unduly, are the standards for which the cutter should

strive when cutting quarters. The term *tops* is generally used to indicate a quarter on a shoe which is fastened to the lower part at a line about two inches above the sole, sometimes being fastened to a whole bal vamp and, sometimes, to a foxing. The tops are much more easily obtained than full quarters, being narrow, and these patterns can be readily placed into the legs of the skin and into narrow parts where a whole quarter pattern would not go.

Tongues, Stays and Appliques

Tongues on staple shoes should be of soft flexible leather in order that they will not chafe, blister, or callous the instep under the lacing. We would call attention again to a tongue when it is considered as a part of the outside shoe wall. This condition is found in many types of novelty shoes, and tongues of this type should be cut with as much consideration as though they were vamps in the forepart and quarters in the upper. Outside stays always form a prominent part of the shoe. They will attract the eye because they provide decoration. They should be good; the edges should be cleanly cut, especially when not folded, so that they will present an attractive appearance after being fitted on the upper.

Many irregular designs are used in present-day models for overlays, underlays, appliques, and so forth. The same care should be exercised in cutting these as would be taken in cutting a back stay. Always remember that these designs are "eye catch-

ers," and, if not exact and regular in outline, they will displease the observer.

Economic laws require utilization of every possible part of the leather when manufacturing shoes. Competition is very keen, and manufacturers are constantly reducing the price of their product. This can be brought about only by intelligent application of thorough technical knowledge in properly placing the quality of leather in shoes. It is not necessary that the entire shoe be of first grade leather, and, therefore, no injustice is done the consumer by using discrimination and judgment in the choice of leather for various parts. In fact, second grade leather, in so far as fiber solidity is concerned, can safely and properly be used without affecting the wearing qualities of the finished product.

Chapter XVI

HOW TO DETERMINE IF YOUR JOB IS CUTTING TO FIGURES

IN this chapter, we shall tell the cutter how he may learn, at the outset, if his job is going to cut to allowance.

In the first place, he must learn on what part of the ticket, or cutter's record, he will find the estimate listed. This depends upon the system in use in his particular factory. Most manufacturers use a service which takes care of their leather estimates. This is becoming more universal as time goes on. Some firms, however, prefer to determine their own estimates. Their methods are usually commendable, providing they have competent men and available time to figure accurately a correct estimate on every pattern introduced into the line. Specialization is the keynote of success, and the advantage of contracting for an estimating service can readily be seen when determining pattern allowances.

Irrespective of the method employed by the factory in question, estimates are usually given somewhere on the cutter's record or on his work tag. Inquiry will acquaint him with the fact and enable him to proceed.

Early Estimates Essential

After having found that his footage allowance is a certain amount for a certain number of pairs, he will proceed to determine the approximate allowance

for a single pair. For instance, should his allowance be 36 feet for cutting 24 pairs of shoes, he will readily know that 1½ feet are required to cut one pair of shoes of a medium size. He will find that the larger sizes require proportionately more and the smaller sizes proportionately less than the 1½ feet, or, approximately 1⅓ feet for the smallest size and 1⅔ feet for the largest size. However, if 1½ feet is the standard allowance, this is the figure to which he should work, even at the beginning of his job, when he cuts a majority of the larger sizes.

Having determined that he is to be allowed 1½ feet, he will proceed to cut up a hide or skin, whichever the case may be. For illustration, we will assume that he is to cut a piece containing nine feet of leather. From this nine feet, he should procure six complete pairs of shoes, provided they are of medium size or are equally divided between large and small sizes. He will find that, if he cuts a majority of large sizes, he probably cannot get six complete pairs. However, if he can get within one cut, he is doing comparatively well. As the job advances, he will learn that he will get the extra cuts later on.

The first skin cut is sufficient to give a cutter a good idea of how he is running according to his allowance. If he finds that he is likely to be one pair or more short, he should determine whether or not the estimates are correct, or whether the fault is with the way in which his patterns are laid.

Occasionally, mistakes are made when estimates are entered on the tags. When the cutter learns that his job is not cutting to figures, he should bring this fact to the attention of the foreman. If the investigation proves that the estimates are correctly written on the tag, then the cutter should outline his one pair of shoes on a clear surface of paper, or cardboard, laying them as closely as possible, and then estimate whether or not he has placed them upon as little, or less, space than the allowance provides for.

Cutters should invariably watch the pieces which are dropped into the scrap box and try to avoid loss of any scrap which is large enough to figure into square inches. His objective should be "strings" for scrap. He should remember that 144 pieces, each one inch square, equal one foot of leather and the cost of this to the manufacturer.

Chapter XVII

STRETCH IN LEATHERS—WHY IT IS MORE NOTICEABLE IN CERTAIN PARTS THAN IN OTHERS

IN every part of a hide or skin, there is found a certain amount of stretch. There is a tight and a loose direction of pull much more noticeable in some parts of the skin than in others. In some, if the cutter is not familiar with leather construction, he can scarcely determine one from the other.

The action of the animal, and its habits of living, are directly responsible for the stretch of leather after the hide has been tanned. For instance, if a part of the hide or skin covers a portion of the body which is constantly in action and which is habitually contracting and expanding, the hide at that point must necessarily be so constructed that it will provide free action.

Points of Stretch

In analyzing the cause of stretch, we will begin at the rump. This, the rear part of the animal, is rounding over the hip joint, and, while, sometimes, there is heavy muscle structure between the bone and the skin, the skin structure must be such that it will stretch and contract with the animal's action in walking. When the leg is put forward, the skin will be drawn taut, and, as the leg is extended to the rear, it must contract. Joints such as are found in the

front and hind legs, cause the stretch in leather in the leg portion. The skin, after it has been trimmed and tanned, does not usually carry leather much below what would be the covering of the stifle joint in the hind leg and of the elbow in the front. These joints are large, and they play a part in practically every body action. As the legs are bent, the skin must expand and contract to provide for the variation in the shape of the bone structure at the joint.

Pocket Folds

Pocket folds are the part of the skin directly in front of the stifle joint and directly behind the elbow. They are of soft, flabby structure which have previously been described and, usually, will stretch in most directions because of the contraction and expansion of the chest and the abdominal walls, and because of the forward and backward motions of the legs in running and walking.

Upon the belly, we find another condition. The stretch in this part of the skin is due to distention of the abdomen caused by heavy feeding, to abdominal breathing, and to other activities of the animal. It will be found that, the higher on the animal's body we go, the less noticeable the stretch, until we are almost directly over the point which covers the backbone.

At the chest, we find a condition similar to the one in the belly. The stretch is probably not quite so noticeable in the portion which covers the chest walls, although, generally, there is scarcely any dif-

ference. The chest contracts and expands intermittently, because of the animal's breathing. There, the stretch is on the under part, or chest proper. This can be explained by describing the bone structure. Ribs form the chest wall, are solidly fastened to the backbone, extend around the lungs, and are joined in a cartilage structure over the breast. The forward part of this structure becomes a solid breast bone in mature animals. The front ribs are quite firmly attached, but, as we look back, we find the arch extending rearward unattached, making possible that expansion and contraction which stretches the chest proper in breathing.

In the neck, we find another condition. It is difficult to connect the animal's activities with the relative stretch to be found in the neck. However, we know that, in young animals, especially calves, there is not so much stretch as there is in the necks of hides taken from mature beef. Constant swinging of the head from side to side undoubtedly causes some muscular contraction and expansion, which must be provided for in the skin structure. Occasionally, a neck will be found where there is not much stretch.

Over the backbone, we find a small area not so noticeable in stretch as in poor quality. At each side of the backbone, extending downward over the animal's sides, we find the firmest leather in the skin. This is the portion which covers the ribs. There is not much contraction or expansion here, due to the fact that there are no joints, and that the ribs lie

comparatively close to the skin, so that there are no extreme muscular movements.

Fish Leathers Have Little Stretch

The cutter who has been working continually upon the leathers taken from land animals will experience surprise when he first handles and cuts leather tanned from shark skins. Having developed a natural expectation of encountering considerable stretch in the legs of skins or hides, he will naturally expect to find stretch in the projecting portions of shark skins. There is a great difference here, however.

The fins of the shark are practically a solid bone structure and have no joints in their construction; therefore, the cutter will find that the leather in the projecting portions of shark skins is the natural covering of fins; and this leather is as fine and free from stretchy tendencies as that in any other part of the skin.

Chapter XVIII

TO DETECT STRETCH IN LEATHER: THE NECESSITY OF ACQUIRING THIS KNOWLEDGE

THE cutter should learn to detect stretch by sight rather than by pull. Too often, we see a cutter catch hold of the leather which he is cutting and give it a pull to determine the direction of stretch. This is wholly unnecessary if one is acquainted with leather structure as described in the previous chapter and is familiar with the particular pieces upon which he is working. Stretch is provided for by a structure which may be compared to folds or plaits. This explanation is exaggerated, but it will give the idea. For illustration, we will call your attention to a musical instrument known as the accordion, the walls of which fold back and forth into plaits, so that when drawn open they unfold, allowing for the extension of the wall. When closed, these automatically fold into a compact body.

Detect Stretch by Study

These folds show in the animal's skin, allowing for play of muscles and for movements, as before described. Their appearance cannot be safely described as the exact counterpart of a fold, but, rather, they look more like finely grained wood, showing fine lines which will open slightly when a pull is given at right angles to the direction in which they

run. A little study will acquaint the cutter with this appearance, and, when he has analysed body activities, he will know where to look for them and the direction in which he may expect them to run.

Instinctive knowledge of stretch is a material aid to the cutter. It dispenses with the necessity of pulling each cut, once he has learned stretch properly, and he may develop such accuracy of sight that he can tell at a distance of fifteen or twenty feet, whether a cut is properly placed, upon seeing the place from which it was taken in the skin. Occasionally, we see a sorter or inspector turning over shoe cuts. He will turn them over and inspect them, one by one, without feeling any individual cut, probably turning over as many as fifteen or twenty pieces. Then, we see him stop with one in his hand and pull it to prove the accuracy of his knowledge. He does this by virtue of long experience in handling leather, during which time he has learned the exact appearance of stretch.

Direction of Stretch

It will be found that the skin at the rump will stretch from front to rear or vice versa over a very narrow margin, approximately one to two inches along the edge of the skin. The leg will open across. Flanks will stretch, some, in any direction. Necks will usually stretch crosswise rather than lengthwise, although no exact rule can be given for this portion. Occasionally, it is found that quarters must be taken crosswise of a neck in order to get the fat

wrinkles properly placed, and a good many times, in calf skin, the stretch in the neck is too little to be an item for consideration. Over the back proper, or the part which covers the ribs, what little stretch there is will be found to run from back to belly. On the chest and belly, the stretch is crosswise of the body.

Chapter XIX

HOW STRETCH SHOULD BE HANDLED IN CUTTING THE DIFFERENT SHOE PARTS

STRETCH in leather plays an important part in shoe construction. In many ways, it may be detrimental to fitting or to lasting, and it may seriously affect the wear of the shoe.

In fitting, stretch seriously affects the skiving, folding and seaming operations. Once familiar with these operations, the cutter can readily see how to place stretch properly, so that it will not be a detriment in fitting.

The skiving machine trims the edge of the cut to a bevel, so that this edge may be folded and not make a noticeable and unfinished ridge when two pieces are lapped upon each other. If the cut is made so the skiving knife cuts with the firm pull of the leather, no serious handicap will result; but, if the skiving must be done crosswise of that firm pull, the edge will stretch out of shape, become longer than the designer intended, and will not show a smooth, regularly cut bevel. If the cut is made with the stretch in the wrong direction, it may even interfere with the action of the machine in feeding, to such an extent that the cut will be totally damaged.

In folding, the same principle applies. This operation is done by folding the skived edge over to the inside and cementing it securely. To get a neat

job, some pressure must be applied. If this is applied crosswise of the firm pull, the piece will be stretched to more than the length allowed, and an irregular part will result. Where the fold is made in direction with the firm pull, a good, clean-cut operation may be obtained.

In stitching, we again meet difficulties. If the feed on the machine is pulling over a loose, stretchy substance, it will stretch the material, rather than force it through the machine, thus making one cut longer than the other and thereby forcing the operator to pleat the stretchy part, if the ends are to be even when finished. Pleated seams cannot be ironed out so they will appear as desired in a good product; and the cutter should use his knowledge of stretch to bring about ideal stitching conditions. He should know that the top of the outside is to be securely fastened to the top of the lining, that all parts should fit evenly, and that this condition can be brought about only by having the parts cut so that they pull firmly along the top seam. Back seams should not stretch to excess, although some stretch can be cared for in the back-seaming operation.

Stretch Important in Lasting

In the lasting department we find that operators are also affected by the way in which the cutter handles the stretch in stock. If one quarter stretches more than another, the assembler is liable to have difficulty in getting the back seam exactly upon

the center of the last. Should he succeed in doing this, the throat will be crooked when the shoe is pulled lengthwise over the last, unless some method is used to hold the loose side back. Crooked throat lines spoil fine appearance and can not be tolerated in a good product. Where a tip is placed upon the shoe, there is difficulty in getting the line of the tip squarely across the last if one side of the shoe is more stretchy than the other. Here, again, the laster must resort to "trick" lasting if he is to get a straight appearing shoe when quarters or vamps do not pull evenly on both sides. The tip itself, if stretchy over the toe, will show an open, coarse grain when finished and will not give the laster good results in the pulling operation. If cuts are made so that they stretch from top of shoe to the bottom, the stretch, if not excessive, may be taken care of over the lasting edge.

The cutter should always remember to place his cuts so that they will be firm from heel to toe. Under no consideration should he allow himself to make a quarter cut stretching from heel to toe; for it may be mated with a quarter which is firm in the same direction, and a crooked shoe will result. The same applies to quarter linings. As we find there is a firm and loose direction of stretch in all leather cuts, we learn that it is necessary to cut vamps so that they are firm in one direction, leaving all looseness in another. However, in cutting vamps, there should be scarcely any difference. Vamp cuts should be taken from the best material in the skin,

and it is generally believed that the proper way to place a vamp cut is with the toe toward the backbone and the heel toward the side or belly. The parts should be taken from the back and sides proper, without cutting too close to the belly. No positive rule can be established regarding the part of the skin from which a cutter must take his vamps, as, occasionally, he finds there are good cuts in parts where he ordinarily expects to find quarter leather only. Most cutters soon learn that they must get their vamps where they can and wherever the quality of the leather warrants.

No Deviation from Rule Allowed

We would warn against any deviation from the given rule of placing cuts so that they are firm from heel to toe. We would warn especially against placing cuts so that the stretch is diagonal. Often, we see a cutter attempting to place a cut so that it is firm from heel to toe, but, finding that the space is not large enough to warrant proper placing in this manner, the pattern will be shifted enough to get it nearly straight. This is poor practice, as it makes a cut with stretch diagonally across the shoe and is as bad as the cut which is squarely off stretch.

Excess stretch should not be permitted in a cut, even though it be directly from top to bottom, and more especially if it is very loose along the backseam or along the eyelet row. Tongues and backstays should not be stretchy from top to bottom; they are the two real exceptions to the given rule.

This is because of seaming on the back-stay and because of the pull to which the tongue is subject while the shoe is in service. Eyelet stays should not be cut with stretch lengthwise of the stay, nor should top bands be cut in this manner. Always remember: top bands and eyelet stays are fed into the stitching machines and must be firm in the direction of the feed. Overlays should not have stretch, especially lengthwise, as they are delicate and hard to place properly upon the shoe, at best. If the feed stretches them, they can not be accurately placed.

Some manufacturers make a practice of backing overlays with paper or some similar material to prevent stretch in fitting. This practice, however, does not warrant their being cut off stretch.

Chapter XX

VISUALIZATION AND ITS RELATION TO GOOD WORKMANSHIP

VISUALIZATION is a term used to describe the ability to form a mental picture of something which has previously been impressed upon the vision or sight. All people use it to some extent, but visualization is mostly practiced by those who are exceptionally alert mentally. Good memories are the direct result of mental visualization. If one is able to take a look at any given object and, having done this, to close his eyes and give a good description of what he has seen, he has formed a true mental picture of the object at which he has looked.

In cutting shoes, the cutter should picture clearly in his mind what the part is to look like when the shoe is finished. He should have a good mental picture of the amount which will be drawn beneath the last. The best way for him to do this is to visit, frequently, some part of the factory in which he can view the shoe after it has been drawn over the last. He should know how all laps and seams are made; so, when he looks upon a pattern, his mind will picture the exact amount of the cut that will be hidden beneath the seam, how much is going to be cut out, the exact position of the cut-out, and how much is going to be decorated with fancy panel stitching and perforations. When he can accurately form a picture in his mind of all these things, he will have

reached the stage at which he can look upon a piece of leather containing scars, broken places, and various other defective spots, and instantly recognize how the pattern may be laid among them to utilize some without jeopardizing the quality of the shoe, or its appearance. In another way visualization is an aid to close cutting. It develops one's ability accurately to judge size and shape without making a test with the actual pattern.

Self Development

The cutter may develop himself along these lines by examining, in his spare moments, all shoe cuts or shoes which come to his attention. If the repair bench is accessible, it is a valuable source of information. If, occasionally, the cutter can see some shoes which are returned from the lasting department and from the fitting department, he will learn how seams are made and what parts of the shoes are being lasted under.

The study of pattern making is another valuable asset. All student cutters should study patterns as a side line, even though they have no idea of going into pattern work, for this study gives the accurate knowledge of shoe construction in so far as seams, lasting allowances, perforations, and panel stitching are concerned. We would warn against being vague or dealing in generalities. It is absolutely necessary for the cutter who is striving for success to be accurate, even in the most minute details.

Another practice, which may be used, is to cut paper patterns on the various parts and draw seam fitting, etc., upon them with a pencil. Use a crayon to mark or shade the parts which will be covered, and outline fancy panel stitches and perforations with pencil. It will often be found that a pattern which presents an imposing appearance at first glance really requires very little clean appearing surface.

Chapter XXI

TEMPERAMENTAL MOODS IN CUTTERS: THEIR CAUSE AND HOW TO OVERCOME THEM

ANY one who has seen cutters at work, day in and day out, knows that they are subject to moody spells, that they are perhaps as temperamental as a craftsman can be. There is good and sufficient reason for this.

In the early days of a cutter's development, he faces difficulties which, if he is to succeed, must necessarily be overcome. At the same time, his technical knowledge is not sufficiently thorough to allow him to proceed without hesitation. Sometimes, it will be noted that an operator's mood has changed from happy to sullen in one day. The effect of difficult jobs varies with the individual. Some become indifferent; others may be stimulated to antagonism; and others will show plain anger. These moods are generally caused by nervous tension brought about by difficulties encountered in a job. The leather may not be up to the standard required for the particular style, quality, or model which is expected, or the cutter may not be experienced in the particular requirements of the job at hand. He knows that he is expected to proceed without bothering his foreman unnecessarily. He worries along, getting each cut only after hesitation, and, having procured the cut, he is not satisfied in his

own mind that he has done it properly. Perhaps young cutters are most affected with these moods, although old cutters are subject to them. This probably accounts for the reputation cutters have established for themselves throughout the country as users of intoxicating liquor. We do not mean that all shoe cutters are heavy drinkers, but we know that, at one time not many years ago, a large percentage used intoxicants regularly. It was the means to relaxation and for release from their daily worries.

Knowledge vs. Temperament

Moody spells in cutters are the direct result of mental panic and strain. The only logical way for the cutter to combat them is through acquiring a thorough technical knowledge of his craft. He should always remember that, even though the leather is not up to standard, perhaps he has not a good work-in pattern, and his regular pattern may be large and awkward; that there is only a certain amount of space and leather available; that he is human, his powers being about the same as the cutter working next to him; that there is no superhuman power in the organization which can make good leather from poor; and that, if he uses his judgment and knowledge to the best of his ability, he has done his part. If there are three pairs of shoes in the particular skin and he succeeds in getting those, what more can he do, even though it looks as though the waste is excessive?

If the cutter is conscientious, he does not want to waste leather; neither does he wish to jeopardize the quality of his cut parts. Poor leather quality, or the improper placing of a cut, may cause it to be thrown out later in the process of manufacture, and, even though he gets an extra cut from the skin, he has not accomplished anything unless it is good enough to pass inspection. If he adopts the habit of dispelling doubt from his mind, assuring himself that common good judgment will carry him through, just as it will the man at his side, he should be able to dispel worry. He should always remember that nervous tension is detrimental, and, if he is not calm, he creates a condition whereby his mental disturbances are increased.

Antidotes to Worry

Foreman and assistant foreman sometimes use little tricks intended to bring cutters out of these periods of worry, such as suggesting that the cutter go get a drink of water and, then, stopping him for a little chat when he returns. This, of course, is done without the cutter knowing just why, but, often, it will improve his peace of mind, and is given here as an illustration of what may be done to overcome moods of discouragement. The cutter himself can do more than any other, if he has reasonable control over his mental conditions, by assuring himself that he can and will get as many cuts and as good cuts from the work at hand as any one man in the shop, and that, after having done this, he has no

cause to worry about the outcome of his work. He should remember that, if he has trouble in controlling his own mental attitude, when working on the job at hand, the foreman probably is familiar with the exact condition of the job, and his worries over it will be as great as the cutter's. He should also remember that the foreman has many jobs throughout the room, all of which are giving operators some anxiety over the same things which are causing greater anxiety to foreman and owner. The foreman should not be bothered (except when necessary) about a job which is a little irregular, but radical irregularities should be reported to him. The cutter should remember that he is expected to work out the difficulties after having received suggestions from the foreman.

Difficulties are the conditions which create jobs for all of us. Operators should bear in mind that, if leather cutting were as easily executed as the cutting of paper and with no greater irregularities, cut shoes could be turned out by a machine in million quantities without the aid of skilled minds or hands. Therefore, the mental attitude should be: *The difficulties encountered by me, day after day, when I am plying my trade are what I am being paid to overcome.*

Chapter XXII

CUTTING THE LEATHER LINING

THE term *leather lining* is applied to the interior parts of the shoe upper in which leather is used. It is more commonly called *trimmings* by members of the craft. It may be quarter lining, top band or eyelet stay, and, in low shoes, we often find the complete lining of leather, more especially where there are numerous cut-outs in the forward part of the vamp. Occasionally, we find high shoes which are completely lined with leather. Sheepskin is most commonly used, although the material may be calf, kid, sheep, lamb, horsehide, or other stock.

The advance in civilization and in living standards within the past few years has done a great deal to develop the almost universal practice of lining shoes with some material or other. In pioneer days, it was uncommon to find the ordinary person wearing a shoe which was lined. Shoes were commonly made of heavy leathers, unlined. Some unlined shoes are still worn, especially by agriculturists and laborers, where the wear and conditions do not warrant buying higher price shoes.

Reasons for Linings

Lined shoes have the advantage of being practically smooth inside, the grain side of the leather lining being worn next to the foot, and, thereby, increasing comfort and lessening the damage to hosiery.

The leather lining is, moreover a material aid to the construction of good shoes in other ways. It helps to support the outside, thereby making possible the completion of a more perfect appearing product.

In our instructions on cutting the leather lining, it is necessary to dwell especially upon the importance of a smooth fitting inside of the shoe. The cutter can do much towards bringing about this condition if he watches his daily work, so that the lining, when cut, may be properly fitted and lasted without difficulty. He should be particular to see that stretch is properly taken care of. Quarter linings, especially, must be firm from heel to toe, so that the back seam will pull straight down over the center of the heel and will help to maintain rigidity in the heel seat of the finished shoe. If the quarter lining stretches from heel to toe, it necessarily causes more strain to be put on the outside when being lasted. That particular outside must hold against both outside and lining on the opposite side of the shoe, and probabilities are that, unless the shoe is "tricked," it will come off the last crooked. The lining which has stretched from heel to toe will show ugly wrinkles and can not be worn with comfort, thereby adding to the number of dissatisfied customers. In cutting sheepskin, we find there is not much difficulty in taking care of the stretch properly, if the material at hand is solid bodied. A cut can often be placed directly off stretch without making any noticeable difference in the part after

it is finished. However, it never should be taken off stretch when it is possible to place it properly.

Sheepskin Problems

Soft finished sheep and lambskins are very much different. They are so full of life that they will stretch, or seem to stretch to some degree, in any direction, and they are soft enough in body that they may be crumpled in the hand like a rag. This condition adds to the trimming cutter's problems. In the first place, he must learn to sharpen his knife so that it will not drag the material under the edge of the cutting blade, leaving ragged ugly cuts along the edge of the pattern. The blade should be ground thin and keen, so that it will cut like a razor. It is better to spend more time getting a proper grind upon the knife than it is to try to cut all day with a poorly ground blade, facing he probability of having the work to trim at the completion of the job.

Usually, calfskin linings are more firm in body and cause less difficulty in the cutting. However, it is necessary to watch calfskin linings to see that stretch is properly placed and that all fat wrinkles are hidden or placed so that they run lengthwise of the quarter.

It should constantly be borne in mind that the leather linings in novelty shoes are an important selling feature. They add materially to the appearance of the product when on display. Who has ever seen a lady's shoe in the storekeeper's win-

dow without noting that the appearance is materially enhanced by a beautiful leather lining?

The Use of Various Weights

The trimming cutter should sort his stock according to weight, so that the heaviest material may be used for the largest sizes. Under no consideration should he deviate from this rule, unless cutting two grades of shoes the requirements of which state the use of lightweight material in one and heavyweight in the other. A few years ago, it was customary to use very lightweight stock for lining women's shoes. Manufacturers are turning to heavier leather linings as time goes on because they find that they can procure a much better looking product, and that the shoe is more serviceable and just as comfortable as is the one with lighter lining.

The trimming cutter should be exact when working on his job, and he should be especially careful that he has observed all work tag markings which relate to his operation. He should be familiar with the markings which state what material is to be used. He should be sure that he has obtained the proper patterns, that they are the proper width, and that he is cutting them according to instructions on his tag. He should be especially careful that he does not slip his pattern, as a lining which is not cut to the pattern will not fit the upper when taken to the stitching room and may come back or may cause the shoe to be discarded later during the process of manufacture. He should be especially care-

ful that he has made the stab marks straight down through the eyelet; the proper way to put in stab marks is at the time when the cut is being made rather than to pile three or four cuts one upon another and later punch an awl through the whole of them in one operation. Punching several cuts at one time is a dangerous practice. If the awl is slanted very slightly, the mark left upon the bottom cut may be fully one-eighth of an inch out of place. Awl marks should be in the exact position intended by the designer and pattern maker if a beautiful product is to be assured.

It is customary for leather lining cutters to take extreme care that especially heavy stock is not placed at the edge of a cut where there is to be a lap seam, or where there is to be a discontinuance of leather and the beginning of cloth. Heavy edges in these parts will show through the outside of the shoe when it is placed upon the last. A distinct line may be seen where every heavy joint is made. Of course, when the shoe is removed from the last, this may not be so noticeable, but it will again become apparent when the shoe is worn. The extra thickness is there, and either the wearer's foot or the upper of the shoe must give way for this added thickness.

The Choice of Colors

All cuts should be mated for weight and for color. It is customary to use light colored leathers for linings, especially in ladies' shoes. Even the most

ordinary colored sheepskin may, at some time or other, show some variation. It is not good shoemaking to cut linings so that there is a possibility of one dark quarter lining and one light quarter lining being put into the same shoe.

The best way to avoid this is to carry an extra size for the dark shaded cuts. Quarter linings should be, in most cases, of the best material. The toe lining is hidden from the eyes of the observer and not so important insofar as clear surface is concerned. Strap linings should be firm lengthwise of the strap in order that they will aid in supporting the button strap.

The leather lining cutter is properly the apprentice shoe cutter. Strictly speaking, he is not; but, as he learns to cut leather linings according to the standard rules for stretch, he is on his way to develop the knowledge needed by the upper cutter. The same principle applies to cutting the inside quarter; therefore, if he learns his leather lining work properly, he has made an important step toward being advanced to the shoe cutter class.

Chapter XXIII

CUTTING BLACK SIDES

CUTTING black sides is the first step in the cutter's education. These are the most easily handled of all leathers, and the inexperienced cutter is able to take them and go ahead without the danger of getting into serious difficulty, even though he has not the aid of an instructor at all times. At the beginning of the job, he should be careful about the sorting of his stock. When he has examined the job, he should be sure that he has every side which has been charged to him and that the footage of each one tallies. He should then go about sorting the stock as to weight, size of hides, and clear surface. He should then examine the pattern which is to be used and determine whether it will suffice to utilize leg and head cuts.

Method of Procedure

In the leather sort, he should observe weight first and so lay out his leathers that the heavy skins may be used for large sizes. Then, the heavy skins with the widest open legs and heads should be used for extreme large sizes wherever possible. There will thus be less difficulty in working up legs and heads. A cutter can often lay out his leather so that the large quarters will work well into the legs. If these were to be cut later in the job, making necessary the use of a smaller size quarter, some material loss

would likely result. Clear surface is another consideration in leather sort, it being necessary to place the upper stock so that the cutter may always know which are the clear cutting surface hides. It is not the practice of a good cutter to use up the hides with clear surface first, going afterward to those with poorer surface. It is better to cut a clear surfaced hide, gaining as much as possible on the vamp cuts, making it possible to utilize more of the next hide in quarters, then to take a hide with a poor cutting surface and even up cuttings. In this manner, the cutter will assure himself that he is not imposing upon the remainder of the cutters in the room. It is not good practice to lay aside the poor surfaced pieces to be turned back to the stock room. In most places, this procedure will not be tolerated. This should be borne in mind; the leather must be cut or it would not have been sent out.

It is necessary to observe pattern markings and compare with the markings upon the tags as to pattern number, width and directions for cutting.

Starting the Cut

As a rule, the proper place to start upon a black side is in the hind leg. There may possibly be some exceptions, but they are rare. Having cut the leg away, the cutter should observe the skin before him to see how the next cut made will affect his vamp stock. He must be careful that he does not use vamp stock in quarters, especially in the beginning of the job. Later, he may find that he can do so.

Two sizes of patterns should be carried, one to take care of the lighter weight stock: this is usually a small size and can sometimes be used in a place primarily intended for a large cut, but which turns out to be a little too small for the larger pattern.

It is important that the cutter follow the outline of his pattern always.

In cutting across the skins, the cutter should constantly endeavor to have a regularly cut edge. By this, we mean that the cuts should be placed one against the other, so that there will be no indentations and extensions beyond the line of cutting front, in the uncut stock, but, rather, cuts should be placed side by side in such a manner that the forward edge is always nearly upon a line with the previous cut. Indentations are dangerous to the cutter's figures. He will find, if he makes a practice of extending a cut here and there into the body of the hide and in advance of the regular line, that he will have trouble with his figures. There is good reason for this. A piece to be finished is usually cut at a loss, and, unless planned beforehand, when a cut is extended forward of the regular line, it makes necessary the finishing of a piece upon each side.

Side leather is the stock which is most commonly damaged with grub holes, it being taken chiefly from the hides of grown cattle. The cutter will find that it generally carries numerous scars, especially near the butt and upwards along the back.

The Cutting of Patent Sides

It is necessary to dwell briefly upon the cutting of patent sides. The development of the tanning of these has created a different condition in patent leather than obtained in previous years. It is similar to other leathers, insofar as stretch and resistant qualities are concerned, but there are still some things to be observed wherein patent leather differs from other side leathers. The enamel is very sensitive, and it should not be subjected to extreme changes in temperature. The cutter should see that his patent leather is not placed too close to heating devices, and he should see that it is kept away from an open window in extremely cold weather. Scars and grub holes show in patent leather quite plainly in present day tannages, as do rough legs and heads. The cutting of patent is similar to that of any other black sides, except that special caution should be taken about temperature changes.

Chapter XXIV

CUTTING BLACK CALF—HOW IT DIFFERS FROM BLACK SIDES

BLACK CALF differs from black sides in several ways. Scars are not so numerous, and there are no grub marks; but there are many prominent lines about the head and shoulders which are commonly called "fat wrinkles." The skins taken from extremely young animals show wrinkles which are not coarse, and which do not materially damage quality or appearance.

Black calf should be sorted for weight and cutting surface. The heavy skins, where they are available, should be placed at the beginning of the job, and those of lighter weight should be cut later in order that they may be used in producing smaller sizes. The heavy skins should then be sorted again, so that the large legs and heads can be used for the larger sizes. After sorting for weight and checking the footage, the cutter should determine how many pairs of shoes are to be taken from each skin. When he has learned this, he should make it an established rule to get at least that many pairs of vamps and, if possible, an extra pair out of each of the first skins cut.

Selection of Patterns

He should have at least two sizes of quarter patterns—three sizes are better. This makes it possible to have one size for clear surface cuts, one size for

leg cuts, and one for the cutting of quarters into which fat wrinkles may be worked. When quarters are cut in this manner, a uniform mating is assured in the fitting room, unless the sizes become mixed. It should be remembered that it is not probable that the fitter will mate quarters as intended by the cutter unless the shoes are match-marked.

When placing quarter cuts in the legs, the heel should be toward the point of the leg, and the fore-part towards the body of the skin. Quarters should be heeled into the leg so far as the quality of the leather will permit. The quality standard depends upon the individual manufacturer. When placing cuts upon fat wrinkles, the lines should run from heel to fore-part, being least prominent in the fore-part of the quarter. It is not advisable to permit fat wrinkles in vamps. Some manufacturers do not allow them to be placed, even in quarters, when they show with any degree of prominence, although the practice is not prohibitive insofar as wearing quality is concerned. If good judgment is used, it does not mar the appearance of the shoe when these wrinkles are cut into the quarters in such a manner that the wrinkles are most prominent in the rear, with their lines running parallel to the top band—always provided the quarters are properly mated in fitting.

To Avoid Flesh Cuts

A calf skin will often be encountered which is literally full of flesh cuts. This is probably the

most serious imperfection found in calf leather. Usually these can be seen, by the experienced eye, from the grain side of the leather, but, if they can not, the best way to safe-guard against them is by marking.

Often, one skin will be found with considerable weight variation in different parts of its area, being very much lighter about the shoulders. Weight should always be an item of consideration; and, where there is variation in the vamp stock, two sizes of vamps should be carried to provide for proper mating.

Good cutters try to avoid the placing of any cuts so laid upon the calf skin that they will cross the back bone. The stock, at this particular point, is not up to standard in quality, nor does it have the appearance of good leather. Quality cutting requires the operator to place vamps so that the toes meet here. It is more difficult to work up the entire surface of calf than of other skins, and the cutter should develop the habit of keeping the edges well trimmed upon every piece of leather into which he cuts. It should be a regular practice to trim off all small strings of stock before returning a piece to the stock room.

Chapter XXV

BLACK KID

THE natural assumption of the person who has not been taught the difference between the texture and durability of goat skin and sheep would be that they compare very favorably insofar as quality and appearance are concerned. This, however, is not correct. Sheepskin is tender and easily torn. The skin of a goat is tough, yet pliable. Both animals are protected against the weather with fleece. However, the fleece of a sheep is wool, and a goat's coat can more properly be described as hair. This difference in coat extends into the fiber of the skins from which they are produced. Sheepskins are used chiefly for shoe linings and for garment materials, but goatskin is generally used for the outside of shoes.

Kid skins are the skins taken from the young goat. The mature goat furnishes a skin which is generally of coarse grain, but we find the texture and grain to be much finer in skins taken from the younger animals.

For producing a leather of durable wearing qualities, elastic enough to conform to the shape of the foot and soft enough to be comfortably worn upon the most tender feet, kid is unsurpassed, with the possible exception of kangaroo.

Problems for the Consideration of the Beginner

The beginner is usually somewhat timid about his first job of cutting kid leather, and for good reasons; the principal one being the treacherous quality of stretch encountered. This is easily understood and mastered if the student has made a study of leather peculiarities and has thoroughly analyzed the cause and location of stretch in skins of animals. Later in this chapter, the matter of stretch will be taken up more fully.

The first thing for the cutter to think about is having a proper edge on his knife, so that he will be able to cut this leather without its dragging beneath the cutting edge. The blade should be ground thin and very keen. Individual preference will usually govern the cutter about whether he desires his blade ground straight or with a slight hook; therefore, we set no fixed rule in this regard.

Glazed kid leather has a smooth and shiny surface, upon which the pattern will slip quite easily. This makes it extremely important that the cutter be competent in holding his pattern firmly in one place. He must be careful in cutting around narrow points that the leather does not pull with the cut and slip under the pattern.

Kid cutters usually try to have their stock lying conveniently at hand, where it can be reached without unnecessary shifting of body position. Some turn their boards at a right angle to the position used when cutting large hides and use the end of the board for cutting surface rather than the side.

The far end of the board provides a convenient place for the laying of several other skins.

Difficulties Arising from Glare

It will be found that the glazed surface of black kid is deceptive to the eye, if not adjusted so the light strikes it at the proper angle. Occasionally, we find cutters who tilt the cutting board slightly toward the window in the belief that they get a better view of the cutting surface by having the light fall directly on it. The individual should consider all these things and adjust his board to the must advantageous position.

Upon receiving a job of black kid, the cutter should examine the cutting surface of the skins to determine whether or not the glazed finish is marred by numerous scratchy places or broken surfaces. These defects can be seen easily if the leather is pulled slightly in both directions—meaning, of course, lengthwise and crosswise of the skin. If the cutter finds the leather to be full of partially invisible defects, he may then and there decide to proceed cautiously.

In sorting the stock at the beginning of the job, the cutter should select for weight, for grain, and for clear cutting, using the heavier weights for the larger sizes, and laying out his stock so that the coarser grained skins may be grouped together and the cuts, taken from them, placed in a size, or in sizes, by themselves. Two sizes of patterns should be carried at all times, making it possible to get

the coarser grain quarters into one size and the finer grain quarters into the other. Vamps should be cut accordingly. The vamp pattern, to be used in cutting the size into which the coarser grain quarters are being cut, should be so placed as to have fine grain in the forepart and to run the slightly coarser grain toward the rear, thus making the change a gradual one toward the rear of the shoe.

The cutter should observe the size of skins given him on his particular job and estimate at the beginning how many pairs of shoes can be cut from each skin. For instance, we will say that he has received a job upon which his allowances show that he is to have 1½ feet of leather for each pair to be cut. We will further assume that the skins given him upon this job measure 2¾, 3, 3¼ feet in equal proportions. He will then know that he is to get an average of two pairs per skin if he is to cut his job to figures. In sorting the leather, this should be taken into consideration. He should lay out his leather so that the large sizes will be cut from the 3¼-foot skins. The medium sizes should be taken from the 3-foot skins, and the small sizes from the 2¾-foot skins. He will find that this practice will help him to procure his quota from each skin, and he can tell accurately, at any time during the job, just how his cutting is meeting the requirements of footage estimates. Care should be exercised that he sees and understands, when beginning to cut a skin, where he is to get the vamps, thereby ascer-

taining to his own satisfaction that he will be able to get the two pairs from the skin which he has upon the board, according to the standard he has set for himself.

Stretch in Kid Leather

It is necessary to dwell briefly upon the so-called treacherous qualities of stretch in kid leather. Once the student has thoroughly analyzed the cause of stretch, as detailed in a previous chapter, he may assure himself that his knowledge of leather stretch is as reliable in cutting kid as in handling any other leather. The chief difficulty to be encountered is the fact that kid skins are small, and that, sometimes, he will be at a loss to determine just how to place a cut so that it will be firm in the proper directions throughout the entire cut. More especially is this true when he is cutting shoes in which large quarters are used. The cutting of low shoes from ordinary size kid skins is an extremely simple matter if the cutter knows stretch thoroughly; but, when cutting shoes for which large patterns are used, good judgment and common sense are the best guides a man can have.

Placing the Patterns

Quarters should be heeled into the leg as far as the quality standard of the manufacturer will permit. Sometimes, the manufacturer provides a shoe to utilize the leg cuts. Leg cuts are always coarser in grain than those from the body, except only the

border of the belly. Flank cuts are not to be considered if they pull open to any extent. At the head, we find the grain to be the coarsest found in any part of the skin and, sometimes, so coarse that the quality standards demanded will not permit its use in any outside part of the shoe. These things are determined by the manufacturer's standard and should be learned by inquiry if the cutter is not familiar with them. Sometimes, a quarter lining is provided for the utilization of some of the under-grade stock. When such a provision is made, the cutter should be sure to take advantage of it; but he should be careful that no stock which is good enough in quality to be used in the outside of the shoe is cut into quarter linings.

Cuts should be placed so that they do not cross the backbone. The finest grain is usually found next to the backbone, and from this, the tips and vamp foreparts should be procured. If there are visible veins upon the grain surface of the leather, they should be so placed in the cuts that they will be thrown towards the underside of the shoe, provided they are not prominent enough to weaken the leather. Under no consideration should a vein be placed in the top, or rather the center, of a vamp or tip. If in a quarter at all, they should be toward the rear and upper part of it.

No positive rule can be given regarding the way a cut should be placed; there are so many different designs in patterns and so many different types and

styles of shoes that a rule given for one kind would not work in some others. A few general rules may be given, however, one of which is that quarters should be firm from heel to toe, *and the finer grain should be toward the front,* so that it blends with the finer grain of the vamp.

Should the cutter encounter skins, while cutting the job of black kid, which are apparently sandy or which have the feel of having been finished with short, stubby hair protruding through the surface, he should call the attention of his superior in the department to this fact and be advised upon the method of procedure. Should he notice that he receives skin with a decided difference in appearance (the difference may be in the glazed finish or it may be in the color upon the flesh side, one carrying a bluish or grayish tint and another carrying a decidedly black finish), the matter should be reported to the foreman at once in order that the cutter may be sure, in his own mind, that the shoes will finish properly later in the process.

Chapter XXVI

COLORED SIDES—HOW TO HANDLE

IN respect to cutting colored side leather, we have rather a large field to cover, due to the fact that the methods of cutting this material may vary greatly, depending upon the animals from which the leather was tanned, the tanning process, and the particular dye used in producing the color being cut. It has been the aim of tanners to produce a uniform color on various shades of side leather, and, in many cases, the maintenance of uniformity has been so perfectly developed that it requires little more attention to cut colored sides than ordinary black sides.

However, we find there is still considerable colored side leather being used, having quite a variation, from light to dark, throughout the various sides, and, often, there is considerable difference between the parts of any one hide, depending upon the varying solidity of fiber in those parts. When this variation is encountered, it is necessary to proceed as cautiously as when cutting colored calf or kid leather.

The First Essential on Receiving a Job

On receiving a job of colored side leather, and after having checked the footage of each hide to learn if it corresponds with the footage charge upon the cutter's record, the first essential is to determine the amount of variation in the particular job at hand.

If each side is found to be uniform throughout, but if it is ascertained that different sides vary a shade, perhaps lighter or darker when compared with one another, the procedure should be to sort the leather in such manner that the darkest will be the first one cut and, after having cut it, the next darkest shade should be taken. Cutters generally arrange their leather in such a manner that the darkest side is placed upon the top of the pile, the next darkest shade directly beneath, and so on through the entire job until the last side is reached. On comparing any two hides lying next to one another in the pile, little variation will be found, but should observation lead to a comparison of the first side and the last, it may reveal considerable difference in shade, probably so much that the two could not be used in any one pair of shoes cut from that particular job.

In factories where colored side leather is cut without being match-marked, it is necessary for the cutter to proceed with the fixed determination that he will cut each size completely from one shade; so there will be no possible chance of offcolor cuts being placed in any one particular pair of shoes. He may think he is proceeding wisely if he cuts and mates each pair as he goes, but, on investigation, he will find that the cuts are mixed in the fitting room to such an extent that the parts of the particular pair in question can not be re-assembled. This will prove to his satisfaction that the only safe method of procedure is to arrange his work so that each size will be uniform in color.

Exceptions to the General Rule

We have said that the rule should be to start with the darker sides. However, there are instances where it is necessary to reverse this method, depending on the weight of leather and the patterns available at the beginning of the job. As explained in a previous article, heavier leather should be used in the larger size shoes. If the cutter finds that the majority of his heavyweight leather shows a light color, then the method of procedure should be from light to dark. However, cutting from dark to light is generally conceded to be the best practice, for a quarter may be safely mated to a vamp and tip of slightly darker shade, as the lasting operations stretch vamps and tips more than they do quarters, and this stretching usually lightens the color slightly.

If it is found that there are two distinct shades of color in one job, these two shades should be separated, in sorting the leather. When the job has progressed to the point where the first one being cut is nearly finished, the operator may examine the shoes cut, check up the remaining footage in that particular shade, and determine if there is enough to finish the cutting of even pairs or even sizes. The break should come on even sizes if possible. It may be necessary to lay aside a small piece when the size is finished, but this should not be considered a serious disadvantage, for the cutter may have one or two cripples to procure from that particular shade during the progress of the case through the factory.

Care Required Not to Mix Shades

Under no consideration should a cutter allow himself to be induced to use one size of quarters with another size of vamps and tips unless the color is as uniform as black leather.

If it is found, when the job is received, that there is variation in shade on every individual hide, a different method of procedure must be established. The sorting of the leather should be the same as previously described, but the cutter will find it necessary to carry two sizes of patterns for color variation alone; possibly three will be better. He probably will find that the legs run darker than the body of the sides; that the leg cuts must necessarily be mated one with another to get proper uniformity, and that vamps, to meet these darker cuts, must be taken from an entirely different side, as vamp stock is found in the body, and the body portion of the side is usually somewhat lighter than the legs. Sometimes, it will be found that cuts taken from hind legs do not mate well with front leg cuts. When this is the case, three patterns should be used to take care of the variation and to assure proper mating.

Chapter XXVII

COLORED CALF—ITS CHARACTERISTICS

ON receiving a job of colored calf, the cutter will observe that it is usually of sensitive tint. There will perhaps be a dark margin around the entire skin and a dark strip along the backbone. Almost all calfskin other than black can be properly classed as colored; and gradations of shade will be found in most of it, even in white. Therefore, its cutting may be termed a job for a master craftsman.

After making note of the type of patterns to be used, and after having checked the leather footage, the cutter should sort his stock in a manner to work out most advantageously for his particular job. He should estimate how many pairs of shoes can be procured from each skin and determine whether or not there is enough uniformity of color in each to make the required number of pairs complete without the addition of some cuts from another skin. Sometimes, he will find it necessary to cut part of one pair of shoes from one skin and the remainder from another in order to get the desired color uniformity; but, usually, he will be able to match the complete pairs from every skin as he proceeds.

It is always practical—in fact essential—to carry two or more sizes of patterns; so, the lighter weight stock may be properly mated, the lighter shaded stock properly matched, and the leg cuts kept in complete sizes, as, also, the cuts which show fat wrinkles.

Fat wrinkles are characteristic of calfskin. Usually, they are not so deep or prominent as to depreciate greatly the value of this leather in the finished shoe, because the skin has been taken from an animal which was immature, and its bodily action had not left many deep marks upon its skin.

Care in Placing Patterns Essential

In sorting the leather before beginning the job, the cutter should see that he has so arranged his leather that the size of the skins will take care of full pairs, and, having done this, he should determine before cutting into each skin just how he is to get the required number of vamps, following up with the quarter and other patterns to get the pairs complete. We do not mean that the vamp should be cut first, but, rather, that the first cut should be carefully placed in order that no vamp cut may be spoiled. The novice will, at the outset, usually spoil one or more vamp cuts in a calfskin. However, if left to his own resources, he must quickly overcome this fault or he will cut his job to considerable loss.

In placing quarter cuts into the leg, they should be heeled back with the front of the quarter toward the body of the skin, so that the darker shade and the coarser grain may be kept to the rear of the shoe, making a gradual change from dark to light as the toe is approached, and from coarser grain to finer in the same direction.

Tips should be of light weight, but firm and clear as to surface. They should not show prominent fat

wrinkles and can be just a trifle darker in color than the vamp, because, when they are pulled tightly over the toe in lasting, the colors tend to become somewhat lighter.

Insofar as placing the pattern is concerned, the same rules may be applied as are used in cutting black calf. Fat wrinkles should run lengthwise of the shoe and be most prominent in the rear of the quarter. Only the manufacturer's standards can determine exactly to what extent these may be used, and where.

Placing the Skins at Color Sorting

The color sort, at the beginning of the job, should be practically the same as in sorting colored sides, starting with the darkest or the lightest skin, as conditions require, and proceeding through the job from one skin to another, thus making the change gradual from dark to light or from light to dark.

In cutting vamps, it usually will be found that mates can be taken in opposite position on the skin. For instance, a left foot vamp may be taken from the left side of the skin and its mate taken from the right side, making a pair. The next pair may be taken directly forward of this, cutting the left from the left side or from the right side, in accordance with the demands of the pattern shape, and its mate from the opposite side of the skin. Vamps should usually be laid so that the toe is toward the backbone and the heel toward the outside of the skin. If they are plain toe vamps, the cutter must be sure that the

toe does not cross the backbone, but, rather, that the two toes meet at this point. Sometimes, it will be necessary to leave a small strip in the center of the calf skin because of coarse grain and dark shade.

Tongues may be taken from the flanks, and the pattern should be so placed that the base of the tongue is in the firm stock.

Match Marking Desirable in Cutting Colored Calf

If a backstay is used on the shoe, it must be taken at the time of cutting the pair of shoes, or some provision made so a pair of backstays will be available to match that particular shade when the shoes are fitted. The chief trouble in handling colored leathers in the making of shoes is that they are not cut so there is insurance against their becoming mixed in the fitting room. Backstays are very easily mislaid, and stays for the size 5 shoe may be put on the size 8 without any one in the fitting department knowing that anything is wrong until some one observes that the color does not match. Where the practice of matchmarking is used and rigidly adhered to, the assembling in fitting will be correct. However, this is a matter for the manufacturer to decide upon, and cutters must abide by the rules and methods used in the shop where they are working. If work is not matchmarked, it is then the cutter's duty to see that he gets sizes complete of one solid color, and that he has tongues and backstays provided and marked for each size.

Chapter XXVIII

COLORED KID LEATHERS

IN developing ability to cut colored kid leather successfully, the student cutter is taking the most important and, perhaps, the most difficult step, in his education. This ability will gain him recognition as a master craftsman. Further than that, it will open the way to a good job as a shoe cutter.

We find that kid leathers are made into fine shoes and into semi-fine or semi-dress shoes for all classes of people—infants, growing children, girls, women, young business men and men of the world.

Superior Workmanship Demanded

The cutter should bear in mind, when he is cutting fine grained, highly colored kid leather, that superior workmanship is expected at all times. The first important consideration is uniform quality, and the second is uniform color. In sorting the leather for color, he should follow the same procedure outlined in the chapter dealing with colored calf. He should begin with the dark skins and cut to the light, if the weight allows. Skins should be sorted according to sizes, in such a manner that they will cut into complete pairs, or as nearly so as possible, and, when the complete pair is taken from one skin, the remaining piece, if there is any, should be a part of the center of the skin. If the next skin to be cut is a mere trifle lighter in shade, the cutter will find that the piece he has carried over from the

last skin will match very favorably with some part of the skin to be cut. However, if he is cutting from a light skin to a dark one, he may experience some difficulty in matching the remaining piece. The piece of a skin which is left when the complete quota of pairs has been obtained, should not be cut into any one or more parts until the following skin is cut or planned; so, the cutter may be able to determine just where and how he can most profitably match and use it.

Placing the Pattern on Colored Kid

All cuts should be placed so that the rear of the shoe is toward the darkest stock, which, with the exception of the backbone, is the outside of the skin. Always bear in mind that the backbone should not be cut into a part which will be visible when the shoe is finished. Therefore, we make no set rule as to color variation at the backbone when setting forth the procedure for cutting colored kid. We know that, if the heel of the quarter is toward the outside of the skin, it can not be toward the backbone. If the wings of the vamp are toward the outside of the skin, neither can they be toward the backbone. However, the toe should not approach the backbone so closely as to allow a cut to show the noticeable dark color and coarse grain which is typical of the dividing line in the skin. Enough of it may be permitted for lasting allowances, and no more, unless there is a tip used to cover the forepart of the vamp. The coarsest grain should be and will

be toward the rear of the shoe if the above instructions are carried out, the rear of the quarter being the coarsest of the entire shoe, the front of the quarter being somewhat finer and somewhat lighter in color. The wing of the vamp should match the front of the quarter for color and grain, and, as the toe is approached, a still finer grain should be noticeable and possibly a little lighter shade in color can be permitted.

Sometimes, a cutter will find it necessary to cut two skins in a group to get the desired result in matching. The rear, or hind legs may be of a grain which does not match favorably with the forelegs, or the weight may differ. If the cutter can obtain two skins of the same shade, he may find that the four hind legs can be successfully used in quarter cuts for one pair and the four front cuts used in another. This is offered as a suggestion, not to be used in all cases, but at the cutter's option if he finds that it will aid in getting a better mated pair of shoes.

Planning Cuts Where Two Shades Appear in Same Job

Where there are two distinct colors or shades issued to a cutter on one job, he should be very particular about getting a dividing line exactly between sizes, or, if possible, it should be between case lots, provided he has two or more cases to cut on any one particular grade and pattern number on that especial job. It is better to have case lots uniform in color.

If the manufacturer is one of the few who make no provision for match marking shoes of colored leather, the cutter should be especially careful that each size is of one solid color, making the variation in shade between sizes as little as possible. If there is a backstay and tongue to be cut with the shoe, these must also be supplied of the proper color and some distinguishing mark placed thereon to identify them with their particular sizes.

Where tips are to be cut, they should be of the finest grain obtainable. They should be firm in every direction, and, above all, they should not pull open along the line from heel to toe.

It is well to remember that few things are successfully accomplished except those which have been planned in advance. The more careful the planning, the more assured success is likely to be. This rule is as true of upper leather cutting as of anything else. The cutter must carefully analyze the job at hand and as carefully lay his plan for cutting it. He need not, necessarily, use considerable time in planning, but, after having analyzed his pattern conditions and after having checked his stock and noted how it will work into the particular shoe at hand, he should be able to reach a successful method of procedure. In some instances, he may find that his plans must be altered as the job progresses. Experience is a good teacher, however, and, as time goes on, he will be enabled to plan better each succeeding job.

Chapter XXIX

THINGS TO BE OBSERVED IN CUTTING ALL DELICATELY COLORED STOCK—SHADING—WHAT THE PULL IN LASTING DOES TO COLOR—OIL OR GREASE ON HANDS, KNIFE, OR BOARD —PROLONGED EXPOSURE TO LIGHT

IN the preceding chapters, we have dwelt repeatedly on the subject of sorting leather for color. Now we touch briefly on a few points to be observed by the cutter in working upon all colored work.

In delicately colored leathers, the cutter will find it necessary in many instances to resort to shading. By "shading" is meant that placing of patterns required to merge one shade gradually into another, whenever some part of the shoe must be somewhat darker than another part.

The cutter must use discretion in the application of this art, in order that the complete pair of shoes will be properly matched. He will often find shading necessary in cutting tan or brown kid, or lighter shades, due to the fact that it is impossible to procure the complete pair of one solid color unless a great percentage of the skin is to be wasted. In doing this, he should see that the forepart is light or dark, whichever the case may be, in all shoes cut, and that the remaining parts match one another to provide uniformity. If the proper method is used,

a beautiful product will result. The tip may not match the quarter or foxing and does not necessarily have to. However, it must match the forepart of the vamp, and it must match its mate in that pair.

All have observed fabrics and materials of changeable color, and wondered, at some time or other, about the construction and the dyeing of such fabrics and materials. The change in color is the result of the change in direction from which the light's rays fall upon the surface, and relative angle of light rays to the line of vision. Color changes may be noticed to some extent, in dyed leathers. The difference is not so noticeable in leather, but, nevertheless, it is there, and it depends on the position in which the cut is laid in relation to the angle of the light's rays and the line of vision. Therefore, when a cutter lays out a pair of shoes for the purpose of matching color, each cut should be laid, one next to the other, in the exact position in which they will be joined when the shoe is fitted. Also, every pair should be laid exactly like the pair preceding it. If a cutter wishes to satisfy himself on these points, he may do so by laying out the parts of a pair of shoes in the manner described above and then, after having done so, reversing the position of one tip or one vamp, or placing it at right angles to the position in which it will be found in the finished shoe. He will be surprised at the difference in color shown in some tannages when this test is made.

Caution in Handling Oil and Grease Required

A word of warning may be given here about the practice of using a piece of oily cloth or waste for darkening a cut which does not seem to be as dark as desired. This is a habit commonly employed by cutters, and it is detrimental to the making of a high grade product, due to the fact that oil is not a dye and is more apt to discolor the leather than to shade it. It may cause a chemical reaction which will be evident later, when the shoe is being finished. Therefore, the practice is not a good one, however logical it may seem.

Usually, tips can be cut a trifle darker than the vamp upon which they are to be placed because the pull in lasting will make them somewhat lighter. It is well to remember that all parts subject to severe pull in the lasting operation are likely to finish lighter in shade.

The cutter should be constantly alert that he has no film of oil on his hands, that there are no greasy spots on the work bench, and that his board is not overly saturated with oil. The board should be thoroughly buffed or planed after each oil dressing before any colored leather is cut on it. A soft, clean cloth should be kept for cleaning both hands and knife after whetting. Perspiring hands will collect some discoloring matter and may soil delicately colored leathers if the hands are not repeatedly dried.

Effect of Light on Delicate Colors

Cutters with experience on colored leather know that a skin should not be left lying on the board during the noon hour or at night. No matter how clean the board, there is a possibility of the leather absorbing some moisture or oil and thus becoming discolored. All good cutters will roll or fold a skin up before leaving for lunch or at the end of the day and place it in the pile with the remainder of the leather. This practice should be observed at all times.

Leather should not be laid where it will be unduly exposed to sunlight, as it is liable to bleach or change its color because of chemical reaction from direct exposure to the sun's rays. A few minutes' exposure may not prove disastrous in this respect; but, should a cutter wish to test this to his entire satisfaction, he may take two pieces of leather and place them in the window where the sun can shine continuously upon them for a few hours. It is best, when making this test, to leave them from Saturday noon until Monday, so that the difference may be noted. One piece should be laid slightly overlapping the other. When removed, on completion of the test, two very distinct shades will be noticed in the under piece. The part unprotected by the upper piece of leather will have become bleached several shades lighter, with the dividing line exactly where the covering piece lay upon it.

The cutting of colored leather is fascinating to an unusual degree. Men who have been at it for any length of time, and who have properly developed themselves in this, usually dislike to be given a job of black work, because, where piece rates are the standard by which they are paid, the colored work pays best. Moreover the man who has been habitually working on colors finds that he is at a loss for some time as to the method of procedure upon black work, due to the fact that he must cut more rapidly and more economically, insofar as leather footage is concerned. His habitual caution and practice of matching and shading cuts is not so vital, and he feels that he possesses knowledge that entitles him to more responsible work.

Chapter XXX

MATCHMARKING AND ITS PURPOSE

AN early step in the education of the cutter of colored stock is the learning of the proper practices and application of matchmarking which are so commonly employed by manufacturers of high grade shoes. Cutting room experts and shoemakers in general have found that it is not often practical to bunch or group a quantity of cut shoe parts and send them to the fitting room without some mark of distinction whereby the parts of each individual pair of shoes might be recognized.

Experience teaches that machine operators in the fitting room, cannot be depended upon, nor can they be expected to assemble a pair of shoes, so as to bring about the proper harmony of colors such as is intended by the cutter when the job was done, unless there is some infallible guide whereby each cut may be recognized as the vital part of one particular pair of shoes, absolutely necessary in its place, to bring about the perfection of a beautiful product. The architect who plans large and beautiful buildings knows the necessity of having an identifying mark placed upon every piece of material to be used in making his building. Likewise, the true shoemaker knows the absolute necessity of using a fool-proof method to insure against the possibility of different shades becoming mixed, thus causing the union of cuts which do not harmonize in the finished shoe.

Matchmarking Practices Differ

The exact custom to be used in matchmarking may vary somewhat, depending upon the manufacturer, but the principle must be the same in all cases. The cutter will learn that he must lay the parts of each pair, complete, in a group by itself, in such a manner that it may readily be separated from the next pair without mixing cuts. If hand matchmarking is employed, and if it is done by the cutter, he must learn the method used to mark the individual cuts so that they may be distinguished. For instance, a pair may be marked size 7½—1 to indicate that his particular pair is the first pair of size 7½. The next pair may be marked 7½—2. Various other methods of marking are used, but the result must be the same.

Sometimes, machine matchmarking is done. If this is the case, the cutter will lay the cuts so that the parts of each individual pair may be easily separated, in order that the machine marker will experience no trouble in keeping the cuts in the proper pair of shoes until the marking is done.

The mark should be placed upon each cut in such a manner that it will not be defaced or become illegible, at least until after the assembling operation in the lasting room. Even then, the purpose of matchmarking may be defeated if strict attention is not given to the detail of keeping the shoes in pairs throughout the process of manufacture.

Difficulties in Devising Matchmarking Systems

Here is a difficult problem. If the hand marker places his identifying mark upon the inside, or flesh side, of the cut part, it can not be seen after the shoe goes over the last. However, it can be placed only in this position. If machine marking is done, the mark may be placed somewhere upon the lasting edge—and on the grain side of the leather. Here, again, there will be no mark visible to operators throughout the remainder of the process after the sole is attached.

Still other manufacturers follow the process of putting the case number and matchmark both on the lining and on the lasting allowance of the upper. This allows the matchmark upon the upper to be seen until the sole is laid. Shortly after the sole laying operation, the last may be pulled, or, at least, the fastening may be loosened, so that the upper may be pulled back to disclose the lining mark.

Then, there are manufacturers who are far-sighted and particular enough to attempt to overcome this evil through the application of another method: putting their jobs up in small groups whenever and wherever possible—one to two pairs to a size, and a few pairs only in a case lot. They require their cutters to harmonize the colors in a size complete. This being done, and each size being properly marked with the case number on outside cuts, lining cuts, and leather lining cuts, the possibility of mixing

colors anywhere throughout the process of manufacture is overcome. However, the cutter can make up his mind that he will not even then be relieved of the duty of grouping his shoes in case lots. If he receives a job where he has two or more cases, he should lay the tickets out in such a manner that, when his job is cut, his work will be cased with the lighter shades all in one case and the darker in another.

Chapter XXXI

KANGAROO LEATHER COMPARED WITH KID

KANGAROOS are of many species, ranging in size from an ordinary rat, or even smaller, to the size of a full grown goat. The skins from the tiny species of kangaroos are unfit for use in shoes. However, there are several of the larger animals from which the skins are taken for the manufacture of leather. The common terms known to the shoe trade are kangaroo and wallaby, the wallaby being considerably smaller than kangaroo.

Leather tanned from kangaroo skins is soft and pliable, and, since it is very expensive, its use is confined to very high grade shoes. The cutter who has acquired a knowledge of cutting kid leather will find it easy to learn how to handle kangaroo. Slight differences will be noticed in the shape of the skin and in the appearance of the surface. The skin of a kangaroo is triangular, due to the fact that the animal grows in ungainly proportions, its hind quarters being highly developed and the front quarters undeveloped, so that they could aptly be described as dwarfed. Therefore, the greater area of the skin is over the lower back and hind quarters.

Another peculiarity in kangaroo is its numerous pit marks. They have the appearance of small scars and are probably caused by insects which live upon the animal. Experienced shoe buyers recognize the

genuine kangaroo by these pit marks. It is practically impossible to cut a shoe from a genuine kangaroo skin without there being numerous pit marks in its area, and the cutter should not try to avoid these, as they prove the genuineness of the product. Observation teaches us that leading manufacturers permit some of these marks even in the tips of their fine kangaroo shoes.

The same general principles applying to the cutting of kid may also be applied to the cutting of kangaroo—the chief differences being the increased area, over the back or rear of the skin, available for shoes, and the practice of allowing pit marks in any part of the shoe. Stretch should be lengthwise of the shoe; the coarsest grain should be placed in the rear and the finest in the forward part, with a view to making the change gradual between the quarters and vamps, so that the front of the shoe appears the finest.

Chapter XXXII

THE CLASSIFICATION OF HIDES AND SKINS

ONE of the peculiarities noted by the observant student cutter is the commercial trade names given to various forms of leather. He will note that, sometimes, the pieces of leather which he is using are called "hides." Again, he will have a job in which they are called "skins." In a general way, distinction is drawn between the large and the small pelts. Pelts taken from sheep, kid, calf, kangaroo, and other small animals, even to reptile and alligator, are commonly termed "skins"; those taken from grown animals of large size are commonly called "hides." Side leather, commonly termed "sides," are half hides. The complete pelt usually covers an area of about twenty-four feet and over. The most common leathers, in this classification known as hides, are taken from grown beef animals and from horses.

Kips and veals are usually called skins, and the largest kips may cover an area of perhaps a little more than twenty feet. They do not usually come in the form of side leather, although tanners are beginning to market kipskins in sides.

The cutter who is anxious to be recognized as a master of his craft and an authority upon the different kinds of leathers, should make a study of the commercial terms applied to the various kinds

of leather. He should always be alert, in his conversation regarding leathers, so that he will make proper use of the terms "hide" or "skin," being careful that he does not call the leather from sheep "sheep hide"; neither should he allow himself to say "cow skin." If he would win recognition from his superiors, he must learn to use all terms properly, because, while it may seem a minor matter to him, the leather expert can not help but notice a mistake in the use of common commercial terms.

Cutters, as well as men working in other lines of endeavor, should be ambitious. The individual should have a definite goal in view for which he is striving from day to day. The man who is satisfied with his endeavors or with himself today will be classed as a mere plodder some coming day. There is no excuse for cutters to remain cutters, for the field affords ample opportunity for any man who is willing to develop himself to such an extent that he may be recognized as an authority on leather. Probably, there is no field which affords more opportunities than that of merchandising leather and leather products.

Chapter XXXIII

KIPS; VEALS

IN a previous chapter, we have outlined a few general rules for cutting calfskin, but we have omitted kips and veals until now.

In outlining the principles for upper leather cutting, kips and veals can not properly be classed by themselves, as they are a medium between calf and side leather. Veals may properly be termed "exaggerated calf," while kips probably could be called under-grown sides or hides. The same principles which apply to cutting calf may be applied in the cutting of veals, although there are some differences, insofar as weight and fiber solidity are concerned, and also in the prominence of scars, insect marks, and fat wrinkles. The difference in fat wrinkles is the chief one to be noted. They will be considerably coarser and can not be economically used when a high grade product is required.

Problems Caused by Fat Wrinkles

In kips, there is even more of an exaggeration in this respect, it being sometimes necessary to discard the entire portion of leather taken from the head and neck as unfit for use in the outside of the shoe. For men's shoes, where the quality standard is not too exacting, these parts may be used in the cutting of eyelet stays, inside back stays, and various other small parts which are not placed prominently in the

shoe, or which are placed inside the finished product. When cutting oxfords, the matter is more difficult because quarter linings must be comparatively smooth and of good appearance, for these parts add materially to the appearance of the product. Under no consideration should heavy parts from over the bones, which carry coarse fat wrinkles, be used in the tongue of the shoe. The tongue should come from the flank, with the most solid leather at its base, or, if flank is not permitted by the particular manufacturer, the tongue should be taken from flexible, lightweight leather, and care should be exercised that the base is strong enough to hold threads securely.

In some respects, kips and veals are more easily cut than calfskin, because there is a larger surface to work on. This is a decided advantage, especially in the cutting of men's shoes. Patterns used in cutting men's shoes are quite large and, often, can not be advantageously placed upon calfskins which have an area of about six feet only, unless the surface of the skin is practically flawless. On such small skins, it is a difficult matter to place a whole bal vamp so that it does not cross the backbone, and so that the toe may be against the back, with the heel extended toward the flank, and still have space enough to obtain a quarter from the remaining leather in the leg. This difficulty is partly overcome when cutting kips or veals, because the skin is wider and affords ample room for the laying of patterns of this type.

In cutting kips and veals or calfskin, the cutter should consider the type of pattern he is using, and, if he makes a study of his conditions, he will soon learn that the method of procedure must be different when cutting oxfords from that used when cutting high top shoes. A little analysis will reveal why this is necessary. In high shoes, there is a greater percentage of area which can properly be called quarter stock. Therefore, a cutter soon learns that, in cutting high shoes, especially whole quarter bluchers or whole quarter bals, he must use more of his leather in quarters, and a smaller percentage for vamps is required.

Cutting Reptile Grain

The buying public, today, shows a partiality for alligator and other reptile leathers for decorations on its shoes. Some individuals even express a desire to have the entire shoe of this material. Although such shoes may be beautiful if properly made, they are probably not to be recommended for the conservative person, the reptile or alligator trim perhaps being better. Some manufacturers and shoe retailers are expressing a preference for imitation reptile and alligator, their chief reasons being that these embossings, having been developed to a surprising resemblance of the genuine product, are, in many instances, more serviceable and can be more economically utilized, which makes the shoe less expensive to the consumer. Heretofore, reptile grains have been for the exclusive. Now, they

are within reach of practically every one. They are embossed chiefly on side leather, kips, veals, and calf. Some of these prints nullify all the principles heretofore used in cutting upper leather into shoes, chiefly because reptile grain must be cut so that the grain impressions will be harmoniously matched in the finished product.

A definite outline must be established for the cutting of grains of this type. The pattern should be taken into consideration. It should be marked out beforehand upon a piece of paper or upon some other material on which the outline of the particular grain to be cut has been reproduced, and various plans should be tried, in laying the patterns, to bring about the desired result.

Chapter XXXIV

SPEED IN CUTTING—WHAT MOTION STUDY WILL DO—WHY A THOROUGH TECHNICAL KNOWLEDGE IS AN ASSET IN ACQUIRING SPEED

WE have outlined the principles to be considered in the development of close cutting and quality cutting, but, so far, we have not touched, to any great extent, on the development of speed. Speed is to be ignored by the student cutter until he has developed a natural intuition in respect to leather quality and its application in the manufacture of shoes. When he has properly developed this intuition, rapid cutting will gradually become possible.

As soon as the cutter becomes a good judge of the size and shapes of patterns, so that he can look upon a given area and visualize one, two, or three cuts in advance, he has acquired the chief asset needed to develop speedy cutting. Often, it will be noticed that the cutter who apparently makes the least haste is the one who turns out a big day's work. It will be found that he merely lays a pattern and cuts around it without any apparent effort, and without any trace of indecision in its laying. Perhaps he has trained himself to keep an accurate count as he proceeds, so that he knows when he has the required number without counting and recounting several times during the process.

Indecision Slows Up Cutting

The slow cutter is often a very conscientious worker, and sometimes, his desire to do exact work is his undoing, insofar as speedy cutting is concerned. The cutter of this type will lay a pattern, pick it up and lay it over, perhaps two or three times, before deciding upon his cut, and then, possibly, he will replace it in its first position.

For the cutter of this type, we would recommend a more thorough technical knowledge of the shoe. Usually, he is undecided because he does not know exactly how the finished cut will appear. He is not able to visualize the exact lasting allowance, seam allowance, decorations, and other markings which have a bearing upon the quality of a cut; and, probably, he has not been as closely observant of finished shoes as he should have been, nor as inquisitive about the decorations and markings upon new patterns, as they were introduced into the factory. In order to develop speed and quality cutting, he should be able to visualize accurately the finished shoe.

Damaged Shoes Show Cutter's Mistakes

It would be beneficial for him to enter into discussion with other shoemakers regarding these various points at every available opportunity, and to study as many damaged shoes as possible during his spare moments. These may usually be found at the cripple bench in the cutting room.

Another step toward increasing his output is a

scientific study of his individual movements. He should strive to develop that degree of perfection which makes every move a progressive one, being careful not to lay a pattern until he has decided exactly where it should go, and being determined to arrive at an accurate and instantaneous decision.

When the pattern is laid, he should cut around its border, starting from that point on the pattern which makes the complete circuit most easily executed. He should learn to cut corners without withdrawing his knife from the board and should be sure that the leather has been completely cut through at all points with one stroke of the knife.

One Pair Every Six Minutes

When all moves are analyzed, we find that it would not be such a difficult matter to cut what is generally considered a good amount of work in a given time. For illustration, we will use a woman's ordinary one-strap pump of the plain toe type. To cut this shoe requires the cutting of two vamps and two slim quarters and two full quarters, which make a total of six pieces to the pair. If the cutter times himself when making a cut around a pattern, he will find that it does not require a minute to obtain the cut, once it has been started; yet, perhaps, his average on this type of shoe may not be ten pairs an hour; but, to get ten pairs an hour, it is necessary for him to make only one cut every minute, or, rather, to cut a pair of shoes for each six minutes.

Setting New Records

If he has trouble in getting the specified ten pairs an hour, it would be well for him to place his watch in a position where it may be seen easily and work by it, endeavoring to procure the stipulated number of cuts in the given time. After he has developed along these lines until he can get his cuts with comparative ease, he should set a new mark for himself. For instance, if he has been trying to get one pair of shoes in six minutes, it would now be well for him to endeavor to get this same pair of shoes in each period of five minutes. At first thought, this might seem very easy, but it requires no small amount of effort to increase to this extent, and it would mean twelve pairs an hour for the cutter instead of ten, which is an amazing incerase if it can be maintained. It would be a total increase of sixteen pairs for an eight hour day, or eighty-eight pairs for a five-and-a-half day week, which will substantially increase his pay check, provided he is a piece worker.

In the effort to develop speed, it is necessary to realize constantly the importance of close cutting, and figures must not be sacrificed for output if the cutter's reputation is to be protected. Hurried, nervous movements are to be discouraged, for, if speed is sought in this manner, haste will truly mean waste.

Chapter XXXV

LEARNING TO USE THE CLICKING MACHINE

A SERIES of discussions on the cutting of upper leather cannot be complete until some thought and consideration have been given to the operation of the machine developed for this work, which is commonly called a clicker. The invention of the clicking machine was truly a progressive step in the making of staple shoes. Its general use has been somewhat retarded by the recent introduction of exaggerated styles and the demand for rapid succession of various patterns. Thus, many factories making style shoes have practically discarded their clickers, especially those which produce ladies' novelty shoes. This is due to the fact that styles may run over a period of two or three weeks only, and it is not considered practical to buy dies for use on a clicking machine for so brief a period. This condition has already brought about considerable advance in the cost of dies. Die manufacturers have suffered perhaps more than any other particular branch of the industry.

The clicking machine operator has two dies to handle where the hand cutter has but one pattern for right and left cuts. A cut may be taken from either side of a pattern, while a clicker die will cut only from one side; therefore, much more expense is entailed in outlay for dies for the machine cutter than for patterns for the hand cutter.

Details of Machine Adjustment Should Be Mastered

Machine cutters should learn every detail about the clicking machine. They should learn the clutch mechanism, the braking mechanism, and about all machine adjustments, even to the adjustment of the machine table which is for holding the cutting block. They must be particular in seeing that the cutting block is properly taken care of and properly cut upon. If the table is adjusted so that its surface is exactly parallel with the striking surface of the beam, and if the cutting block is of one thickness throughout, it should be possible to make a good clean cut with one stroke of the machine beam, provided the pattern is not too large. Usually, they are not too large, the exception being in patterns for eighteen inch boots or shoes of similar types and proportions. Generally speaking, when it is necessary to make more than one click for the cutting of a piece, there is something wrong with the condition of the block, the condition of the die, or the machine adjustment. The block may be higher at one given point than it is at another, the die worn to the extent that it is narrower at one point than at another; the machine may not be set so that it strikes to the proper depth; or, possibly, the table is not really parallel with the cutting beam.

The Machine Cutting Block

Two chief types of cutting blocks are used, one being of wood, the other of fiber, each having its advantages and disadvantages. Individual preferences or prejudices are usually the deciding factor regarding

the installation of clicker blocks, and a discussion regarding the merits or demerits of either is out of place here. However, either block will give satisfactory results if properly cared for. Various dressings may be bought to harden cutting surfaces, and, contrary to the method of caring for hand cutting boards, the surface on the cutting block of a clicker must be hard and solid, with just enough "give" so the die may enter the block slightly but not so far that the leather will imbed itself in the fissure. These blocks are made from small pieces of wood or fiber standing on end and securely held together with adjustable iron bands around the outside and with stay bolts through their centers. The nuts upon the bands and stay bolts of cutting blocks should be tightened regularly; so the block will be kept as one solid piece, even though it may shrink considerably.

How the Cut Should Be Made

When blocks, dies, and machine adjustments are properly cared for, an amazing amount of speed may be developed on a clicker. The cutter has the advantage of being able to see accurately the cut as the die is placed. It should be his constant endeavor to develop to that degree of perfection whereby a cut will be obtained in four distinct moves, the picking and placing of the die being the first move, the swinging over the beam and the clicking, the second move (one click only being allowed), the swinging back of the beam to its place at the side of the block, the third move, and the picking up of the die and cut part, the fourth. Until

a cutter has developed these movements for the machine cutting of uppers, he has not reached the proper degree of perfection. Stay cutters often swing and click a beam without removing the hand from the handle of the beam at any time during the process of cutting a number of parts, and using the other hand for die placing. When this is the method developed by stay cutters, the clicking machine is a very valuable asset, there being but one disadvantage to this method of cutting, namely, the danger of injury to the operator, as it is possible for him to get his hand caught beneath the beam. Cutters of this type should be cautioned and instructed to place this hand on the beam when the beam is being swung over the die. It may be pointed out that this is an advantageous way of handling the beam, as the extra hand will aid in stopping the swing and in starting the return swing.

Chapter XXXVI

ARTIST OR CRAFTSMAN?

IT was the writer's privilege, in his early experience as a shoemaker, to read a letter of recommendation given by a certain foreman to a cutter. In this, the foreman described the cutter's trade as "the art of cutting shoes." The term seems a most fitting one, more especially so as we become more familiar with the possibilities and opportunities which are presented daily to the shoe cutter.

The writer sincerely wishes that every new cutter would go to his work in the spirit of an artist rather than that of a job holder. His mission is that of developing a product which will please the eye and the sense of good taste, and which will be an aid as well to the physical comfort of its wearer. We can truthfully say that the man who can be recommended as having mastered the "art" of cutting uppers is justified in feeling proud of his work. To know that he is an active and important factor in so great an industry can but stimulate his pride in his work and his ambition to become a partner, in spirit at least, with an employer whose success is partially dependent upon the cutter's application, knowledge, and ability.

The cutter who makes a close study of his work and the conditions which surround it will find it to be most fascinating. To have the satisfaction of knowing that he has been able, day by day, to produce work

a little above the standard, and to know that he has been able to obtain a few more pairs from a given allowance than the average cutter, should create a certain amount of pleasure and satisfaction in his own mind. He knows that he has attained this height because he has brought scientific study to his occupation. He should see himself in the role of a partner in the industry, something more than a cog in the mechanism of an industrial machine, and playing no small part in its functions. The man who views his occupation as a grind to be endured eight or nine hours a day because it is necessary for him to obtain a livelihood will not have the vision or realize the uplifting joy which is coupled with achievement.

The cycle of prosperity moves through the working man. It is possible, through him, for the manufacturer to create a worthy product which, because of its merits, is disposed of to the merchant. The merchant, in turn, disposes of it to the public, a great part of which is made up of working men and their families. The merchant can not market his goods unless he has buyers. The manufacturer can not sell to the merchant unless the merchant feels reasonably sure that he can dispose of the goods, and the working man can not buy these goods unless he is employed at an occupation, the earnings of which make possible his daily purchases. Therefore, it is his duty to himself, to his employer, to the merchant, and to society, to be really interested in bringing a worthy product into existence.

Reviewing Some Essentials

In early chapters we have placed considerable stress upon the importance of economical cutting. The average cutter often does not realize that a margin of one-sixteenth of an inch around the outside of a pattern may make a difference of two to four feet, or possibly more, in the leather required to cut a twenty-four pair lot of shoes. However, this is a conservative estimate; and, if each cutter were required to buy his own leather, he would soon see the importance of laying each pattern exactly back to the edge of previous cuts at as many points as possible.

He should maintain an attitude of rigid adherence in the matter of utilizing every minute of his working day. At the most, he may be employed nine hours out of twenty-four, for every minute of which he is being paid to produce for his employer. The employer rightfully expects that each minute be a productive one. No man would feel justified in paying a potato raiser two dollars for a short bushel of potatoes if that were the price for a standard bushel; neither can the employer be expected to feel it his duty to pay an employe for idle moments. The cutter who looks upon himself as a partner in the industry can remain cheerfully industrious throughout the day because he sincerely desires to bring about the production of beautiful merchandise, coupled with quality above the average; and he knows that these are the factors upon which prosperity for every unit handling the product is hinged.

Possibilities Open to Efficient Shoe Cutters

The opportunities of cutters are unlimited. They have an ideal chance to learn about the peculiarities of leather, which makes it possible, in later years, for them to enter business along these lines for themselves as leather dealers, or as manufacturers of leather products—shoes, leather novelties, leather garments, or gloves. The cutter has an ideal opportunity to study pattern making. Being constantly associated with various types of patterns, he is put to no trouble to observe pattern peculiarities and the manner in which they must be assembled to make the shoe. Pattern making and designing go hand in hand, and, at present, there is probably no field with greater opportunities or a work more fascinating than that of shoe designing. Opportunities to become foremen of the cutting room are occasionally open to the conscientious and reliable cutter who has mastered the art. Opportunities for becoming superintendent of a factory are proportionately greater for the cutting room foreman than for that of any other department. A careful country-wide study of shoe factory superintendents today will reveal the astonishing fact that nearly ninety percent of them were advanced to that position from the foremanship of cutting rooms.

To the young man who has chosen this vocation, we suggest that he never waver; that he make a close study of all the conditions surrounding his occupation and of all the operations which are closely related, thereby preparing himself for the better position when it presents itself. For in preparedness is strength.